THE NEWSWEEKLY OF INFORMATION SYSTEMS MANAGEMENT
July 24, 1989 · Vol. XXIII · No. 30 · 106 Pages · $2/Copy · $48/Year

COMPUTERWORLD

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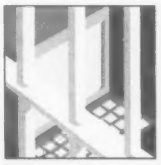
Cincinnati shift: A plan to sell CIM services counts on Cincinnati Milacron's MIS department and manager Mary Jo Burnes. Page 45.

Prison locks out PCs

BY J. A. SAVAGE
CW STAFF

MONROE, Wash. — It used to be that after the steel door clanged shut at 9:30 p.m. in the state maximum security prison here, one could hear some of the 348 inmates pounding on the keyboards of 30 personal computers. But last Friday, this experiment — the only one of its kind in the U.S. — was halted, and the computers were removed.



Removing the PCs was imperative for a number of reasons, according to state prison management. However, inmates and others said the decision contradicts society's desire to reform criminal behavior during incarceration and fill empty hours with useful pursuits.

Prison officials cited the following problems:

- The storage capacity and complexity of the computers exceed the staff's ability to thoroughly keep track of the prisoners' data.
- The monetary value of the computers is greater than the liability limits for damage or loss by the institution.
- The computers are so bulky that they restrict the guards' ability to check cells.

After the Computing Behind Bars program was under way at the Washington State Reformatory, prison officials realized that prisoners

Continued on page 100

Kodak training IS on server strategy

Pilot project leads downsizing drive to year 2000

BY ELISABETH HORWITT
CW STAFF

Eastman Kodak Co. initiated a pilot LAN-based distributed system earlier this month that it hopes will ultimately let it move the majority of its information systems from mainframes to local-area networks by the year 2000.

According to Gary Savarese, project manager for corporate IS, the test project is a human resources information system based on 3Com Corp. LANs and Microsoft Corp. OS/2 database servers.

The prototype system for human resources, personnel and payroll will help Kodak determine whether it is "technically possible from an application and communications standpoint to move those functions closer to our own business units," Savarese said.

Beyond that, however, the system will provide Kodak with "our first look at a distributed SQL environment" in which the workstations run applications and the data resides in an SQL-based database on the LAN server, he added. In an internally distributed corporate statement issued two months ago, Katherine Hudson, vice-president of corporate information systems, said the company's vision of the future anticipates that price/performance and ease-of-use factors within the company "will be such that most applications will be on workstations and LANs."

One of the main advantages of SQL is that users can mix and match front ends, or DBMS servers, and back ends, or user applications. But while industry analysts agreed that SQL database servers are the wave of the future, some indicated that early implementors should proceed cautiously.

"All sorts of front-end products, including Microsoft's

Continued on page 101

Underexposed

Kodak shuts EDS out of data center consolidation project, talks with IBM. Page 101.

Dow Jones snubs IS chief

BY GLENN RIFKIN
CW STAFF

NEW YORK — Bill Dunn rode technology as far as he could at Dow Jones. But in the end, it wasn't far enough. Today, Dunn is preparing to leave behind his notable 28-year career at the company.

Dow Jones & Co. last week named Peter R. Kann, publisher of *The Wall Street Journal*, to the post of president and chief operating officer, placing him in a clear line to succeed Chairman Warren Phillips.

Dunn, the flamboyant and outspoken head of the Information Services Group, had been seen as Kann's chief rival for the top spot. His reaction to the promotion was to announce his retirement from Dow Jones, effective January 1991.

Dunn had already raised eyebrows at Dow Jones and throughout the industry by being considered for chairman. For the past year, the scuttlebutt at the firm had Dunn pitted against Kann as the potential successor to Phillips [CW, Jan. 30].

Continued on page 7

Can Sun ride out stormy weather?

BY JAMES DALY
CW STAFF

MOUNTAIN VIEW, Calif. — In the hills overlooking Sun Microsystems, Inc.'s headquarters grows a brittle yellow grass famous for one thing — its combustibility. When ignited, the foot-high vegetation serves as arboreal tinder, burning like crazy and rapidly consuming everything in its path.

Until recently, these same characteristics applied to Sun, which ignited almost immediately after its inception in 1983 to go from a kitchen table start-up to a red-hot $1 billion firm with a headlock on the workstation market.

But a recent financial hiccup, coupled by high-level departures and management gaffes, has cast a critical shadow over one of the sterling success stories in the history of American business. Last month the firm blamed internal financial glitches for a major setback in revenue, and early this month it announced a hiring freeze on most positions (see story page 99).

Predictably, many of the critical arrows have been aimed at 34-year-old President Scott McNealy. Viewed as part marketing visionary and part whiz-kid egomaniac, McNealy has some observers wondering if the firm has become unable to cope with his ambitious management style.

"Decisions were made with no concern for their impact on each other," said Steven Ossad, an analyst at Montgomery Securities, a research firm in San Francisco, referring to the simultaneous internal systems conversion and introduction of a broad new product line.

In turn, McNealy has been characteristically brash with what he sees as his critics' myopic sense of the company: "Wall

Continued on page 99

Clouded picture

Sun's dominance of the low-end workstation market is under pressure from competitors

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Quotable

"It wasn't fun anymore, and this business is too tough if it isn't fun."

MELVYN E. BERGSTEIN
COMPUTER SCIENCES CORP.

On his recent resignation from Andersen Consulting. See story page 101.

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UPDATE

John Landry, executive vice-president of Cullinet Software, explained at last week's congressional hearings on computer viruses that he got involved with the virus issue out of concern that software vendors could be liable for damage caused by viruses planted in commercial software by employees. For example, Landry noted that Cullinet's IDMS database management software is used by the U.S. Strategic Air Command (SAC). Landry said that one night he was horrified by the thought of Cullinet's liability if the "SAC bombed Chicago" because of a virus in the software. Oy vey!

One giant leap for IS? When nontechies step into high-level IS spots, the results can be interesting, to say the least. Page 67.

ANDY FREEBERG

H. Edward Nyce practices consensus management at Manufacturers Hanover. Page 51.

EXECUTIVE BRIEFING

■ **IS takes new shapes** as groups try to adapt structures and methods to business requirements. Some are dividing into two distinct but connected parts, one to participate in business initiatives and the other to provide technical support. Increasingly, organizations are geared to advance the business objectives of the company. IS can actually help companies absorb changes that are on the horizon, one consultant says. Because it has already weathered more tumult than most parts of the business, it is logical to envision IS helping to introduce organizational innovations. **Stories begin on page 51.**

■ **Downsizing on a grand scale** is the goal at Eastman Kodak, which this month started a pilot project to test LAN-based alternatives to mainframe applications. 3Com LANs and OS/2 database servers are at the heart of the test. **Page 1.**

■ **You can insure your portable PC** but not necessarily the data in it. As portable storage options increase, insurers are wrestling with the question of how to put a value on information that is increasingly susceptible to theft. **Page 100.**

■ **More nontechnical executives are taking over top IS management positions,** creating opportunities and problems. The managers may help IS gain a higher profile but may not be prepared to cope with a systems disaster. Other questions concern how IS will be treated in the competition for resources, how IS' role will change under nontechnical management and how IS fits into the traditional path to top management. **Page 67.**

■ **An IS visionary loses out** in bid to succeed Dow Jones Chairman Warren Phillips. The firm promoted Peter R. Kann, publisher of *The Wall Street Journal*, to president, putting him in line for the top spot. William Dunn, head of Dow Jones' profitable Information Services Group had been considered a leading contender for the job. **Page 1.**

■ **Do you know how much your executive information system costs?** A new study says development can cost more than $350,000, putting EIS out of reach of all but the richest companies. **Page 46.**

■ **3-D graphics for 39 cents.** That's what two Lawrence Livermore National Laboratory designers have done in developing a system that converts flat-screen drawings into lifelike wireframe models by incorporating a pair of cardboard 3-D glasses. **Page 31.**

■ **Workstation wars turn to service,** opening bargain-hunting options to buyers. Flexible maintenance fees as well as free training and installation are just a couple of the incentives you can get. **Page 31.**

■ **A multinational firm cites IBM distribution** and support in choosing a network of IBM System/38s and AS/400s to replace a mishmash of machines. **Page 25.**

■ **Real time is the key** to Walgreen's third-party billing network. A pharmacist can get approval for a patient's prescription and payment terms within seconds of entering information at a terminal. **Page 41.**

■ **Rate cuts by long-distance carriers** forced telecommunications prices down 1% between the first and second quarters of this year, the biggest decrease since the first quarter of 1987, according to a survey. **Page 41.**

■ **Diving into technology,** Cincinnati Milacron moves to sell IS services to manufacturing customers — quite a move for a company that has bought most of its PCs within the last two years. **Page 45.**

■ **Computer Sciences bids for IS business,** consolidating its systems integration and consulting groups into a single unit and hiring former Andersen Consulting exec Melvyn E. Bergstein as senior vice-president. **Page 101.**

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Quarterly income up for IBM

BY NELL MARGOLIS
CW STAFF

ARMONK, N.Y. — IBM came roaring back from its lackluster first-quarter stumble last week with impressive second-quarter gains across all product lines and national boundaries. Even as they applauded the striking performance, however, industry observers noted indications that an encore may not be easy.

For its fiscal 1989 second quarter ended June 30, IBM reported net income of $1.3 billion, a 39% leap from $964 million logged in last year's comparable quarter. Revenue was $15.2 billion, up 9.4% from last year's second-quarter revenue of $13.9 billion.

"The revenue blew us away," said David Wu, who follows IBM for S. G. Warburg & Co. "It was much higher than [Wall Street] expected."

The company was quick to point out, and analysts consistently confirmed, that the revenue numbers were depressed by unfavorable currency translation and otherwise would have appeared brighter still — indeed, would have marked a double-digit rise of approximately 12.5% worldwide after several years of underwhelming increases or even decreases.

However, the 39% net income surge would have been whittled down to a single-digit figure — approximately 8% — had extraordinary items been removed, analysts said.

"Therein lies the problem," said Bob Djurdjevic, president of Phoenix-based market research firm Annex Research. "Overall, especially in the U.S., this looks very impressive. But there are problems."

Weighing in heavily on the impressive side was that IBM could attribute its swelling revenue to every one of its product and service offerings, Wu said. "PS/2 sales grew close to 40%, both in the U.S. and worldwide," he noted. The Application System/400 proved a strong midrange competitor and contributor to IBM's quarterly bottom line, he added.

Also significant, Wu said, is the second-quarter revenue stream's evidence that IBM "has found a way of slowing Amdahl." Moreover, he added, while IBM appears to owe its resurgence of might in its ongoing price war with mainframe rival Amdahl Corp. largely to clever deployment of an arsenal of indirect pricing deals, "if they gave the store away, you certainly couldn't see it in the [second-quarter] margins."

However, there were areas of concern to analysts. Software, which in recent years was good for a growth rate in excess of 20%, this time climbed a mere 6% higher than last year's second quarter and actually declined from the first quarter.

On the hardware side, Wu said, in view of emerging customer complaints about conversion and support problems, "there's some question as to how helpful the AS/400 is going to be over the next several quarters."

Against the grain

Although much of the industry paused, IBM's sales were healthy this quarter

SOURCE: IBM — CW CHART: DOREEN DAHLE

TP monitor issue stands in way of SAA linkup

BY STANLEY GIBSON
CW STAFF

While the Systems Application Architecture (SAA) promise of a common application environment across disparate IBM platforms continues to loom brightly on the horizon, obstacles to arriving there remain, including the lack of a common SAA teleprocessing monitor.

"It's something we're considering," an IBM spokesman said, adding that the firm recognizes that SAA needs a general-purpose teleprocessing monitor.

Some developers have speculated that CICS may fill that role. IBM has refrained from including CICS under SAA. However, the IBM spokesman said that IBM is "looking into" moving CICS to the Application System/400.

Currently, developers have to take into account different teleprocessing monitors in different IBM environments, which can slow development and hinder portability of applications — a goal of SAA.

Under MVS, TSO, CICS and IMS/DC are supported. Under VM, VM/CMS is supported. CICS is offered under OS/2 Extended Edition. The OS/400 operating system is interactive but does not include a teleprocessing monitor as such.

SAA UPDATE

As a result, developers must write applications differently when writing an SAA application, noted Brian Cohen, head of development at Management Science America, Inc. in Atlanta.

"There is a missing link with the AS/400 TP monitor," Cohen said. To get around the problem for now, MSA is writing all host calls to use LU6.2, which can communicate with both CICS and the AS/400.

Developers such as Cohen are waiting for the advent of the SAA Common Programming Interface for Communications (CPI-C), which may include a teleprocessing monitor. IBM has said only that LU6.2 will be compatible with the CPI-C and that users and developers should work with LU6.2 until CPI-C is specified.

"CPI-C could be the glue that holds the monitors together," Cohen said.

Users forcing PL/1 under umbrella

BY STANLEY GIBSON
CW STAFF

SAN JOSE, Calif. — Carrying through on its promise to alter its Systems Application Architecture to satisfy what it called user demands, IBM will add PL/1 to the list of SAA languages later this year.

"We're working very hard to add PL/1 to SAA this year," said Millie Clarke, manager of language products at IBM's Santa Teresa Laboratory. Her comments came at a press briefing on languages held last week at the lab, located here.

IBM suggested further expansions of SAA could be in the offing as well, including the addition of Pascal and Inspect, IBM's interactive debugger.

"Our customers have been telling us for some time that they want PL/1 to become part of SAA," said Al Kennedy, PL/1 product manager. He said European customers in particular who have PL/1 applications on 370-architecture mainframes want to put those applications on distributed Application System/400 systems.

To do so, a version of PL/1 for the AS/400, an SAA platform, would be needed.

However, George Schussel, president of Digital Consulting Associates, Inc. in Andover, Mass., asserted that the PL/1 user base is only about 1.5% of IBM users.

At the briefing, IBM language-development officials also said Pascal, which currently runs across all SAA platforms — MVS, VM, OS/400 and OS/2 Extended Edition — could be added to SAA as well.

However, John Birch, corporate vice-president at McCormack & Dodge Corp., said most users and developers prefer C to Pascal. Schussel, however, suggested that the widespread use of Pascal among college students and personal computer users indicates future demand for it will be strong.

Bev Moncrieff, IBM product manager for scientific language products, also noted that IBM currently maintains the same version of Pascal across all SAA platforms as well as AIX, IBM's version of Unix. She said this is always IBM's practice when developing a language.

IBM officials pointed out that C, Fortran and Cobol exist in common versions across all SAA platforms and AIX. By maintaining common definitions across all platforms, IBM allows little-recognized portability from the SAA world to the Unix world.

IBM, however, continued to stick to its line of not including AIX within SAA because of differences in communications protocols and user interfaces.

IBM officials made other announcements last week:

- Inspect, currently available for IBM's C/370 language and PL/1, will be brought to other IBM platforms. Kennedy said IBM is currently working to put Inspect on the AS/400.
- IBM plans to create a version of Cross System Product (CSP) that generates Cobol. IBM is known to be working with Transform Logic Corp. in Scottsdale, Ariz., to develop a successor to CSP that will generate Cobol.
- Clarke reaffirmed RPG's status as a full SAA language. Support for RPG was announced with the AS/400 processor in June 1988. Clark also said that a two-year development time frame remains reasonable for RPG and indicated that an announcement could come within the next year.

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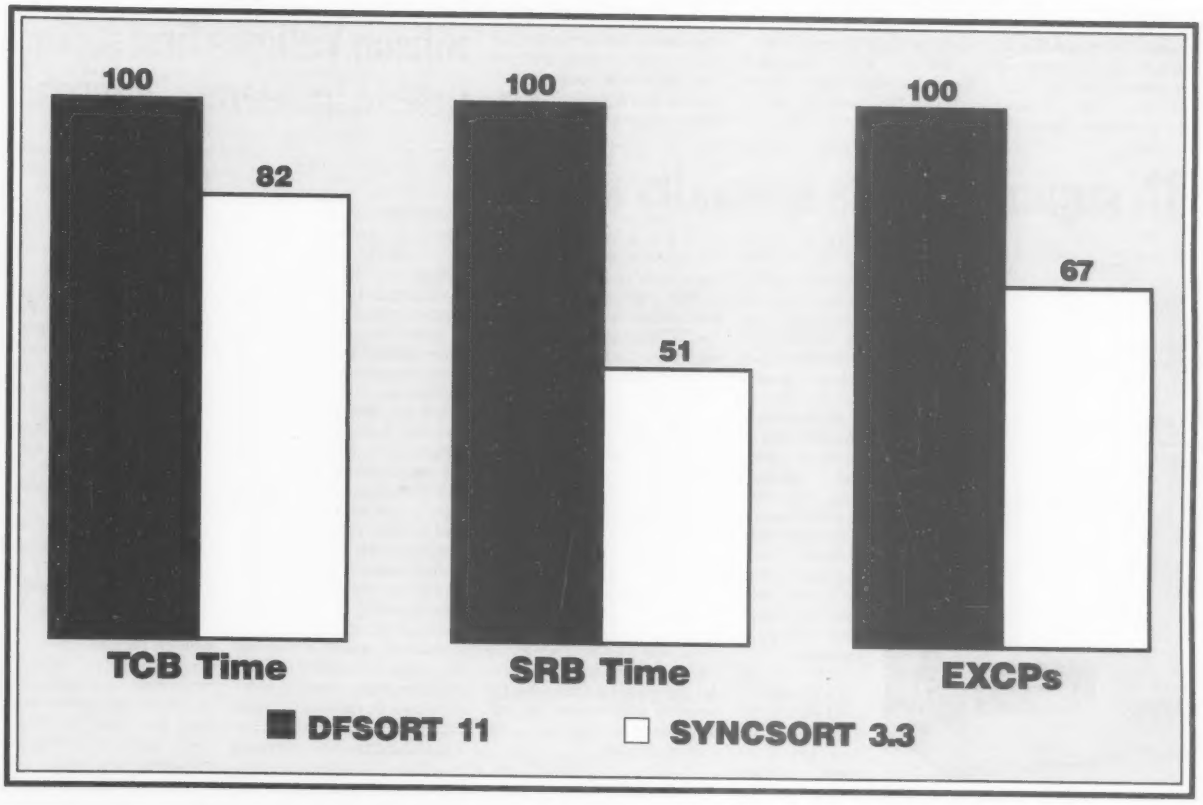

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RISC may hold key to AT&T mini plan

BY PATRICIA KEEFE
CW STAFF

NEW YORK — AT&T Computer Systems told analysts last week to expect additional offerings in its 3B2 line during the next 18 months and confirmed reports that it will produce a reduced instruction set computing (RISC)-based minicomputer next year.

James Clark, AT&T's vice-president of minicomputers and high-performance systems, told one analyst that AT&T may make some "fairly significant" 3B2-related announcements in the next two months.

Analysts said the statements presage a broader move by AT&T into RISC, one they expect will eventually make up the bulk of the 3B2 line.

"Clark said to expect more changes in their minis in the next two years than [we have seen] in the last 10," said Paris Burstyn, an analyst at Business Research Group in Newton, Mass.

These comments were played against the backdrop of a stripped-down vision of AT&T's role in the computer market. Just five years ago, it was widely anticipated that AT&T would lock horns with IBM in a duel of the titans for the Fortune 1,000.

Instead, AT&T acknowledged last week that it cannot conquer the computer world, saying it now plans to focus its resources on specific vertical markets, bolstered by a streamlined product family and preconfigured systems.

Analysts supported the revised plans as a more realistic approach to the computer market. "It shows they are getting their act together," said Richard Villars, an analyst at International Data Corp. (IDC).

What were uniformly described as blatant hints about plans to move to another processor platform also earned points for AT&T. "They were very clear that RISC was integral to their strategy," said IDC analyst Maggie Konner.

"We are working toward a RISC-based architecture," confirmed AT&T spokesman Barry Campbell.

The picture sketched by analysts has the low end of the 3B2 line — Models 310, 400 and 500, which now overlap in part with its own Intel Corp. 80386-based servers introduced last week — being phased out, while the now high-end 3B2 1000 will function as the low end of a new line based on two RISC chips.

That picture, Campbell said, "is not terribly far off the mark." He stressed that low-end 3B2s will not go away in the near term, adding that those models were still viable for users who require a Unix-only server.

Still unclear is which RISC chip AT&T will support.

Analysts speculate that AT&T will support two RISC chips. Clark, according to Konner, said "not to take [any] one thing that we do too seriously; we're likely to develop with more than one architecture."

AT&T has a relationship with Sun Microsystems, Inc., but Sun's Scalable Processor Architecture (Sparc) is considered by some to be unsuitable for larger systems.

"Rumors are persistent that what AT&T comes out with won't be Sparc," said Andrew Allison, editor of "Risc Management" newsletter, based in Los Altos, Calif. "I really think it would be a mistake on AT&T's part to try . . . a Sparc-based product, and I think they realize that."

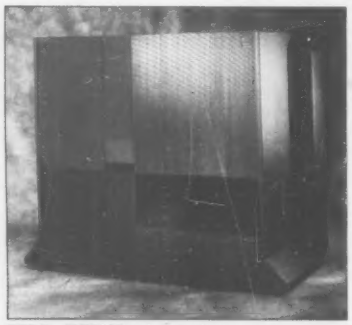
However, AT&T has also allied recently with Intel, which is also promoting a RISC chip. That alliance resulted in the announcement last week of a range of 386-based boxes positioned as high-end networked computers and Unix-based file servers.

BBN super attracts specialty shops

BY ROSEMARY HAMILTON
CW STAFF

CAMBRIDGE, Mass. — BBN Advanced Computers, Inc. last week became the latest company to target commercial users with a supercomputer-class machine.

But chances are its TC2000, which will be offered as a $350,000 minisuper that can be configured up to a $13 million machine with 504 processors, will initially catch the attention of highly specialized technical users instead of finding a place in the typical information systems shop.



BBN's *TC2000 supercomputer*

The Bolt Beranek and Newman, Inc. subsidiary said the system boasts a fully configured rating of 9.6K million instructions per second, and three sales have already been made to select technical users. The customers are the U.S. Navy's Naval Underwater Systems Center, Litton Industrial Automation Systems, Inc.'s Integrated Automation Division and Argonne National Laboratories.

The Data Systems Division of General Dynamics Corp. is currently evaluating the TC2000 but not for its heavy-duty performance rating, according to John Taylor, a senior engineering specialist. Taylor said the system could be suitable for a real-time flight-simulation project there.

"It's a pretty significant system, but we won't immediately see a rapid ramp-up in sales," said Stephan Yost, an analyst at Labe Simpson & Co. "It's really designed for applications that don't exist yet, like very large-scale database processing."

BBN Advanced Computers could use a big hit with this system, Yost added. Its parent company reported a losing quarter for the year's first three months. Yost said the poor performance actually has more to do with the company's communications division and not the computer-system subsidiary. It has made a respectable showing in technical and scientific markets with earlier Butterfly systems based on the Motorola, Inc. 68000 series of chips.

The new system is BBN's first move into reduced instruction set computing territory; it uses Motorola's 88000 chip and can be expanded to accommodate up to 504 of those processors. Such a system would cost $13 million, and BBN noted it had not received any orders for that configuration yet. A typical configuration would be in the 16- to 232-processor range. The $350,000 entry-level system includes eight processors.

BBN argues that it stands a good chance of scoring big with the TC2000 because technical applications are available now and more commercially oriented applications are on the way. The firm, for instance, has had a deal cooking with Oracle Corp. that would put the Oracle database management system on the BBN platform. No availability date has been indicated yet.

At the same time, BBN itself is making a bigger push for the technical market. It has fine-tuned the system for time-critical applications by offering both a Unix implementation as well as a real-time operating system. In addition, it will use direct sales for this market while planning to team up with resellers or software partners to go after commercial business.

Silicon Valley's first super takes a 'moderate' approach

BY JAMES DALY
CW STAFF

MOUNTAIN VIEW, Calif. — The first supercomputer to come out of Silicon Valley emerged last week with the arrival of an Evans & Sutherland Computer Corp. model designed to make the powerful machines more affordable to users and more amenable to new classes of applications.

Officials from the company said they hope the ES-1 supercomputer will carve out a niche through its "moderately" parallel architecture, wherein the machine's eight processors can either be used together to solve complex problems or shared by multiple users.

The ES-1 is capable of processing up to 1.6 billion instructions per second and will sell for between $2 million and $8 million when it becomes available later this quarter, the firm said.

Evans & Sutherland spent nearly three years and $30 million crafting the ES-1, including setting up a division here to exploit the local design talent. Until last week, the Salt Lake City-based firm specialized in computer graphics applications, including sophisticated flight simulators used in pilot training.

The move comes at a particularly uncertain time for the embattled U.S. supercomputer industry. While the machines continue to draw enthusiastic support in every area from weather forecasting to military strategizing, domestic manufacturers are facing stiff pressure from Japanese companies that promise speedier price/performance alternatives.

Evans & Sutherland officials said they hope the ES-1 can invigorate the industry and expand the market for the commercial use of supercomputers.

Easier, please

"Supercomputers need to be much easier to use if we're going to achieve the growth rates we hope for," said Jean-Yves Leclerc, president of the company's computer division.

Company officials said that to help achieve this goal, the ES-1 runs on an enhanced version of Unix, allowing users to modify and fine-tune programs while the system is running.

Already being counted among the believers is Oliver McBryan, director of the Center for Applied Parallel Processing at the University of Colorado. McBryan said he hopes to exploit the ES-1's parallel processing abilities to alleviate the serial bottlenecks that weaken his center's computational strength. Parallel processing, he said, "offers the only hope of getting around that in the next five to 10 years."

So far, Evans & Sutherland has two orders for the ES-1: one from its Japanese distributor Rikei Corp. and one from Brigham Young University.

Processor aid debut

Concurrent Computer Corp. last week announced a new software tool, due this fall, to assist in transforming Fortran applications written for a single processor to run in parallel on multiple processors.

Previously, transforming software for parallel processors was largely a manual task, requiring programmers to pore over code looking for places in which parallelism could be applied. While products are available that help pinpoint inherent parallelism, the Environment for Sequential-to-Parallel Processing, or E/SP, goes beyond that to fine-tune applications for parallel processing, according to Concurrent. A visual programming environment allows programmers to view the structure graphically and better understand the application.

E/SP was designed for use with Concurrent's 3200 family of multiprocessor systems, its OS/32 proprietary operating system and Fortran VII compiler. Pricing starts at $17,500.

AMY CORTESE

Dow Jones

CONTINUED FROM PAGE 1

In a place in which the powerful *Journal* had always been the spawning ground for the chairmanship, it was considered remarkable that Dunn, coming from the IS Group without an editorial background, could be a serious candidate. But when the dust settled, tradition held and Dunn was the odd man out.

The announcement put an end to the internal debate about who would succeed Phillips when he retires. Although the announcement made no formal mention of succession and Phillips, at 63, claims he has no imminent plans for retirement, it is clear that Kann won out over Dunn in the search for a future successor.

Dunn

In fact, Phillips denied that it was a contest between Kann and Dunn, blaming such speculation on "people's need to cast things in the image of a horse race. I don't do it that way."

Phillips named Dunn chairman of the IS Group and announced that Dunn will spend the next 18 months focused on long-range plans and projects. At 53, Dunn is unlikely to remain at the company until 1991.

"Dunn is likely to get scooped up by another company," said Ken Noble, an analyst for Paine Webber, Inc. who follows Dow Jones. "He is still young enough to get an opportunity to go to the top spot somewhere else."

Dunn, who took the nascent IS Group from its beginnings in 1980 to a nearly $200 million business unit, refused to comment on the announcement. But his immediate reaction makes it clear that he was more than miffed at being overlooked. He had made it clear in a previous interview [CW, Jan. 30] that he had accrued enough wealth from bonuses over the years to retire "and wander in the desert near Santa Fe in a white robe." Now that the road to the top has been effectively blocked, Dunn may indeed seek his white robe.

No big surprise

Still, those who follow Dow Jones believe Dunn should hardly be surprised at the choice of Kann. The company's chairmen have always risen from the editorial ranks of *The Wall Street Journal*. Despite flattened revenue and profits from the *Journal* in the past five years, the *Journal* "is still dominant within the company," according to Noble. "And as long as it remains dominant, that's where the chairman will come from."

Carl Valenti, president of the IS Group and Dunn's successor as head of that operation, called Dunn "a great leader and visionary. We are saddened that Bill has decided to retire. This is a loss for us. He put us in the position we're in today."

Valenti pointed out that Dunn and his top managers within IS have been together for more than 25 years at Dow Jones. "My hope is that something will change over the next year and a half and he won't leave," Valenti said. However, he insisted that the road to the top at Dow Jones is not blocked to anyone from outside the *Journal*.

Valenti added that he expects to see more promotions and movement from the IS Group; he was promoted last week to senior vice-president of Dow Jones. He admits that while virtually all of the company's growth has come from IS in recent years and the print side of the house has been flat, "remember that for years we were supported and allowed to develop by the *Journal*. We owe a lot to the print side. I see the electronic and print side growing side by side. I believe the top position is open no matter whether you come from IS or news."

Phillips said that he would like to see Dunn stay with Dow Jones beyond his retirement date. "Whether he can be persuaded to change his mind, I don't know," Phillips said. "He has indicated otherwise."

CORRECTIONS

Due to an editing error, the last two paragraphs were cut from a recent Training column [CW, July 10]. The paragraphs completed a description of a chart accompanying the column. The missing paragraphs read as follows:

In the third year we need major upgrades or introduction of new courses at a cost of 70% of the first-year expenses. Costs also rise for the purchase option because it may be necessary to buy new instructor manuals.

Years four, five and six repeat the cycle. Over the long term, it is more cost-effective to purchase than to develop.

An error in a letter to the editor from Robert J. Sywolski, chairman and chief executive officer of CAP Gemini America, resulted in understating the size of his company [CW, July 17]. The letter should have read: "As the CEO of a $200,000,000/year professional services firm..."

In the Product Spotlight chart on relational microcomputer DBMS [CW, June 19], the prices for The Small Computer Co.'s Filepro Plus 3.0 were runtime prices only. The full development price for DOS is $990. The network has a price tag of $1,495.

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NEWS SHORTS

Microsoft, HP see Apple losing

A U.S. District Court judge ruled Friday that only certain icons and the overlapping windows feature of Microsoft Corp.'s Windows 2.03 and Hewlett-Packard Co.'s New Wave may be subject to Apple Computer, Inc.'s infringement claims. The initial order by Judge William W. Schwarzer limited the case to less than a dozen of the nearly 200 points of similarity that Apple had contended infringed upon the Macintosh user interface. Microsoft and HP attorneys claimed after the hearing that the remaining windows and icon features are either not copyrighted by Apple or are under copyrights that were fraudulently obtained. "At this point, the case is virtually over," said HP co-counsel Neil Boorstyn.

IBM turns up service fees

Another across-the-board service price hike was issued by IBM late last Friday. All maintenance charges will increase by 3%, with the exception of those maintenance fees that had some sort of pricing action on or after April 18. Also excluded are a few select pieces of equipment such as the Personal System/2 system units.

Hacker given 'stiff' sentence

Kevin David Mitnick was given the "stiffest sentence a hacker has received" last week, the U.S. Justice Department said, after he was sentenced to a one-year prison term, six months in a residential treatment program and three years of probation for the possession of Digital Equipment Corp. security codes. Mitnick had begun cooperating with the U.S. attorney in a case against Leonard Di Cicco, who is expected to plead guilty today, according to the U.S. attorney's office.

Renegades settle with Andersen

A settlement was announced last week between Arthur Andersen & Co., Saatchi & Saatchi Co., PLC and six former Andersen partners who formed The Information Consulting Group in Chicago last year. Andersen said all parties had agreed to "put to rest all controversy . . ." and dismiss pending suits.

AT&T profits soar

Citing gains in the white-hot long-distance market and aggressive cost controls, AT&T last week reported record quarterly profits of $699 million, an 18% gain over the same period last year, on sales of $9.2 billion. It also announced an agreement to incorporate Sun Microsystems, Inc.'s scalable font technology into AT&T's Unix System V, Release 4.0.

Data General inks Unix-RISC pacts

Fifteen software developers agreed to port applications to Data General Corp.'s Aviion family of reduced instruction set computing-based Unix workstations. The joint marketing agreements include fourth-generation language developers Oracle Corp., Informix Software, Inc. and Relational Technology, Inc.

MCA version of Vines due

Banyan Systems, Inc. last week announced an IBM Micro Channel Architecture version of its Vines/386 network operating system. Available in August, it reportedly will enable a wider variety of platforms to be certified for use as Vines network servers.

MAI revises offer for Prime

MAI Basic Four, Inc. last week offered $600 million for Prime's minicomputer business, leaving on the table the CAD/CAM business Prime purchased from Computervision Corp. Meanwhile, the proxy battle MAI is waging for control of that same board is still on schedule for the Prime annual meeting later this week.

Refac to press spreadsheet patent

BY DOUGLAS BARNEY
CW STAFF

Visicalc co-developer Dan Bricklin always said that if he had gotten a patent on the spreadsheet, he would be a very rich man. Unfortunately, his lawyer poohpoohed the idea, and Bricklin, while comfortable, has not joined the jet set.

But Refac International Ltd. of New York was not swayed; it obtained a patent that reportedly covers much of the spreadsheet technology. The patent — filed in 1970, some 10 years before the advent of Visicalc — was not awarded until 1983.

Refac is poised to go after the bulk of spreadsheet makers that appear to infringe on its patent, including Lotus Development Corp., Microsoft Corp., Ashton-Tate Corp., Wordperfect Corp. and Borland International, Inc., Refac officials said.

Refac may seek up to 5% royalties, said Refac general patent counsel David Fink. Potentially infringing companies have yet to be notified of the alleged violations. Notification should begin next week, and those that refuse to ante up could find themselves in court, Fink said. Lotus declined to comment, saying it has not been contacted by Refac.

Refac, in business since 1952, specializes in licensing intellectual property and has annual sales of $11 million. It obtained the spreadsheet patent from Forward Reference Systems Ltd., a Canadian software firm that reportedly pioneered many concepts used in electronic spreadsheets.

Ironically, both Lotus and Ashton-Tate are pressing cases that claim other firms violate their copyrights because the products look and feel too much like the originals. Copyright law generally applies to the look or creative aspects of a product. Patents, however, apply to the very workings of a product, which are often invisible.

The patent also covers "sophisticated computations . . . generally carried out by mainframe computers designed for highly complex problems." Like a spreadsheet, a sophisticated computer can break up information and handle it out of order, Fink said. This notion forms much of the basis of this patent.

Many lament the chilling effects that patent and copyright infringement cases have on software development. Critics have charged that such cases not only limit the creativity of developers but also make smaller developers unnecessarily fearful. Bricklin himself is opposed to the abuse of copyright and patent law. "Users should be upset because it is going to harm innovation and standardization," Bricklin said. He is especially concerned about firms that buy patents for the purposes of licensing. "The people that are doing it have nothing to do with innovation," Bricklin said.

"Most of the people that voice the strongest resistance to paying for patents go to work in limos," Fink said. "They want a free ride." Perhaps most disturbing is the aspect of patent law that prevents the use of offending products.

Exec prescribes change at firm

FORT LEE, N.J. — On-Line Software International, Inc. founder Jack Berdy plans on running the company electronically from long-distance — while cracking the books as a first-year medical student.

On-Line's Berdy

With the company en route to profitability, Berdy last week retooled top management, relinquishing the titles of president and chief operating officer to turnaround consultant Peter Boni.

The 42-year-old Berdy, who will remain chairman and chief executive officer, said he will attend George Washington University in Washington, D.C., beginning in August and guide the company's strategic direction via the company's electronic-mail system.

"I'm tied into the company's electronic-mail system and I run the company half the time by electronic-mail right now," Berdy said.

The 43-year-old Boni has spent the previous three years as an interim executive for financially troubled firms.

Fire group douses proposed standard

BY ELLIS BOOKER
CW STAFF

The National Fire Protection Association (NFPA) last week backed away from a plan to increase the fireproofing requirement on cables found in computer rooms as part of an expanded safety standard for data communications wires in building air spaces.

The association, whose guidelines are often adopted by many local regulatory agencies, had planned to stiffen requirements next month. However, under pressure from within its own membership, the standard, which could have substantially raised the cost of building computer centers, has been modified to exempt raised computer floor installations.

At issue was a proposed revision to NFPA's Code 90A that would have treated the spaces under raised computer room floors as plenum air spaces and thus subjected them to existing NFPA standards for such areas. Those standards call for the use of Teflon-coated cable or steel conduit pipe for uncoated cables.

According to Richard Bielen, a senior fire protection engineer at NFPA familiar with the debate, NFPA's HVAC (heating, ventilation and air-conditioning) Committee had pushed the modification, over which it has jurisdiction. Nevertheless, two other NFPA committees, both of which oversee aspects of computer center guidelines, filed complaints. Both committees argued that raised computer floors should not be defined as plenum air spaces.

Other complaints were filed by Du Pont Co., Prime Computer, Inc. and longtime NFPA member the Computer and Business Equipment Manufacturers Association (CBEMA).

CBEMA's recommendation was accepted by the NFPA board last week.

Even if NFPA had adopted the proposed revision, it would not automatically have changed the practice of building computer centers. NFPA is a nonprofit, voluntary organization, and its 260 standards, which include the National Electrical Code, are only guidelines for its 50,000 local and state fire authority members, who are not legally bound to follow the NFPA's lead.

In fact, a number of states and municipalities already have some kind of data cable fire code requirements for air plenums, including those under computer room floors. In Chicago, for example, the building code specifies that all cable in air plenums must be inside a conduit.

Prices for Teflon-coated cable are much higher than PVC-sheathed cable, a worry to those who fought the NFPA rule change. For example, at National Electric Cable, Inc. in Elk Grove Village, Ill., the Teflon-coated cable used for an IBM 3270 network is $600 per 1,000 ft, while the PVC type is just $92 per 1,000 ft.

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	Universal City	July 6*f*
CO	Colorado Springs	August 24 / Aug 24*g*
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IBM's OSI: How open is it?

First system may not work with other vendors' OSI products

BY ELISABETH HORWITT
CW STAFF

WHITE PLAINS, N.Y. — IBM's first concrete commitment to the Open Systems Interconnect standard may not be so open after all.

The vendor's OSI Communications Subsystem, which promises to allow users to manage their OSI networks via Netview, will be unable to interoperate effectively with many other vendors' OSI-compliant products unless it gets a major overhaul before its official release date next spring.

Fortunately for IBM's customers, the computer giant has hinted that it may bring its product back into the OSI mainstream by the March 1990 commercial release date.

The subsystem, announced last September, only supports OSI network management as defined by the Manufacturing Automation Protocol (MAP) Version 3.0, according to Michael Gering, a development programmer at IBM's architecture development group in Raleigh, N.C. This could prevent the subsystem, and therefore Netview users, from interoperating with products from such vendors as Digital Equipment Corp., AT&T and Hewlett-Packard Co., whose products will support subsequent versions of the International Standards Organization (ISO) network management protocols.

IBM chose to incorporate the MAP 3.0 version rather than the ISO's specifications because at the time, "only MAP had defined the details of protocols far enough to enable two systems to communicate for management," Gering said.

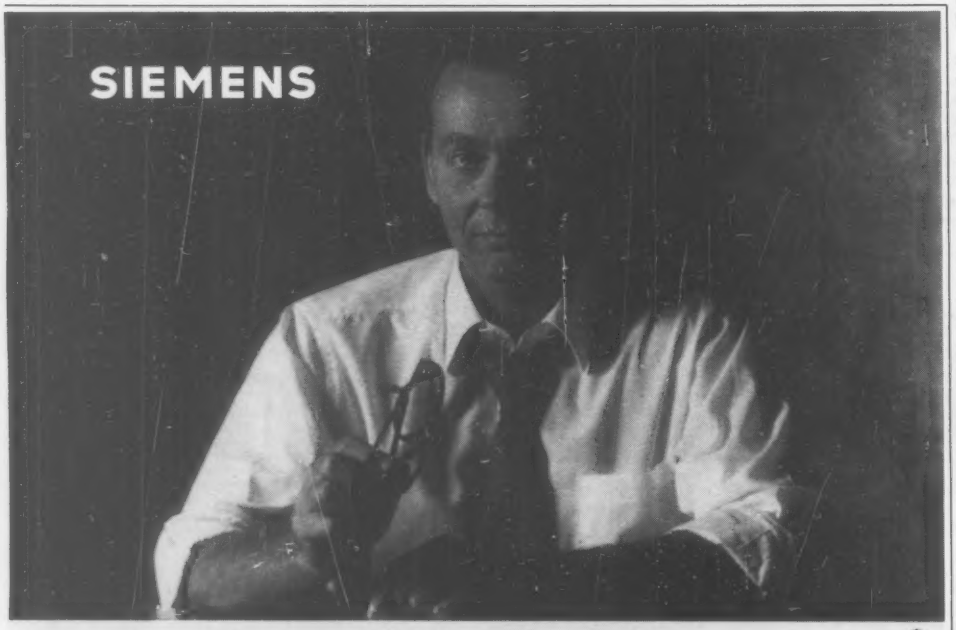
The earliest that the ISO's version could become stable is this fall, when the organization is due to vote on whether to make the current specifications an international standard.

The MAP/TOP Users Group based MAP 3.0 network management protocols on one of the earlier versions of the ISO's OSI specifications, which have had a number of technical changes since then, Gering said. Like IBM, the MAP/TOP Users Group did not want to wait around for the ISO to define a formal OSI standard.

"The MAP/TOP approach is completely OSI-compatible" but not the same as the latest ISO version of OSI, said Michael Kaminski, General Motors Corp.'s manager of communications/MAP. The MAP/TOP Users Group "drove a stake in the ground" with MAP 3.0, freezing the protocol for six years in response to vendors' requests for stable protocols, Kaminski said. GM "would consider using the IBM Communications Subsystem," he added.

The problem for IBM, and for vendors and users at large, is that too many standards bodies are coming up with their own unique versions of OSI network management. In addition to the ISO and the MAP/TOP Users Group, there is the European standards body SPAG and the OSI Network Management Forum.

"We will implement whatever the market requires, so if that means multiple versions, we will implement them," Gering said. "The Communications Subsystem ships next March, and a lot of things could happen by then."



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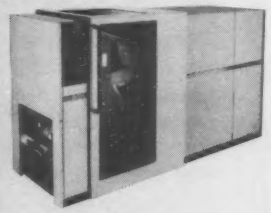

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CC3030-019 WLM 837

Buyer found for CDC education, training units

BY ELLIS BOOKER
CW STAFF

MINNEAPOLIS — When Control Data Corp. founder William C. Norris pioneered the idea of using computers as an interactive educational tool 25 years ago, his was a visionary concept full of 1960s-style optimism.

Last week, however, CDC said it had found a buyer for Plato and several other parts of its training and education business. The sale is the latest in a series for CDC, which has spent the better part of the year realigning its market strategy and methodically selling off parts of its business.

CDC said it had reached preliminary agreement with William R. Roach & Associates in Chicago to form a new training and education company in which it will retain an unspecified, minority interest. The new, as-yet-unnamed company will be composed of several units:

- Plato Education Services, which has offered the computer-based remedial curriculum for kindergarten through 12th grades since 1975.
- Plato Professional Testing & Certification Services, with 66 testing and certification centers throughout the U.S.
- Industrial Training.
- Aviation Training.
- Government Training and Education Services.

Terms of the agreement, expected to be completed in August, were not disclosed. CDC, however, estimated the initial revenue of the new education unit at $50 million.

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Busy airline systems blank out screens

BY MITCH BETTS
CW STAFF

WASHINGTON, D.C. — Overloaded computer systems at many U.S. airports are causing air-traffic control screens to blank out or flicker during peak hours, thus increasing the risk of midair collisions, according to a government report released last week.

Nearly 70% of the nation's 63 largest airports have experienced computer capacity problems that led to blank or flickering screens or slow response times, according to the study by the U.S. General Accounting Office (GAO).

For example, at the Dallas-Fort Worth airport on a busy Friday afternoon in October, the screens of air-traffic controllers went blank for 16 minutes, said the GAO report on airport Terminal Radar Approach Control (Tracon) facilities.

"Existing computer capacity shortfalls at some large, busy Tracons are impairing controllers' ability to maintain safe separation of aircraft," the GAO concluded. The study was requested by U.S. Sen. Frank R. Lautenberg (D-N.J.).

The Federal Aviation Administration (FAA) has taken several interim steps to unburden the overloaded Tracon systems such as postponing training sessions and streamlining software. However, the GAO sharply criticized the agency for failing to have a computer capacity management program that could have foreseen the problem years ago.

Furthermore, the capacity problem is likely to get worse because the FAA on July 1 ordered 44,000 small planes to be equipped with transponders that transmit flight information to Tracon facilities, the GAO said.

Lautenberg criticized the new transponder rule. "It doesn't make any sense if an effort to improve safety at one level degrades it at another. If these computers can't handle the additional signals, we should put in a system that can," he said in a statement.

The Tracon facilities use 15-year-old Univac 8303 processors obtained from the predecessors of Unisys Corp., according to Joel C. Willemssen, assistant director of the GAO's Information Management and Technology Division.

The FAA, recognizing that it needs to boost capacity at the Tracon facilities, plans to award a sole-source contract to Unisys for memory upgrades and as many as 300 additional computers.

The FAA concluded that rewriting software for newer processors would be too time-consuming and costly, so the sole-source contract will supplement the current Unisys systems.

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PC makers test high, low limits of technology

BY RICHARD PASTORE
CW STAFF

Two personal computer makers are stretching the frontiers of PC manufacturing, but in opposite directions. Advanced Logic Research, Inc. has gone for the gusto with an Intel Corp. 80486-based IBM Micro Channel clone, while Zenith Data Systems has concentrated on the other end of the scale, designing its smallest portable ever.

Because Advanced Logic's Powercache 4 was built from the ground up, it was designed expressly to take advantage of 486 technology, said Dave Kirkey, vice-president of sales and marketing.

The company claimed that Powercache 4's proprietary cache design has beaten the performance of machines using IBM's 486/25 Power Platform add-in board by 37%.

The system comes standard with 2M bytes of random-access memory, expandable to 32M bytes, and packs a 1.44M-byte 3½-in. floppy disk drive. Advanced Logic, which boasted of plans to become "the Compaq of the Micro Channel industry," expects to ship Powercache 4 in September.

Zenith's notebook

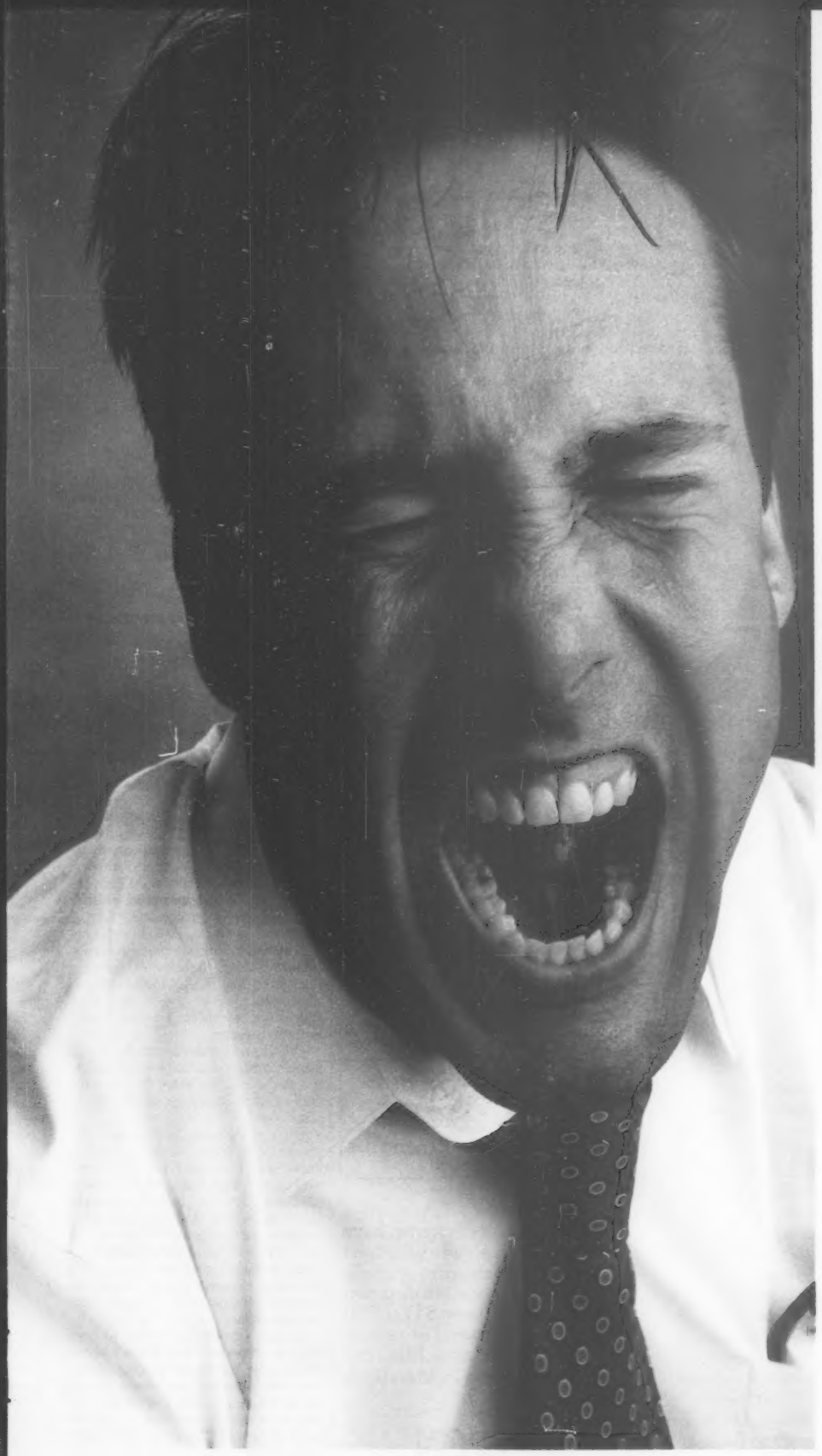
Zenith's Minisport portable computer is about the size of a 1-in. stack of paper and weighs six pounds with battery. The company calls this class of machine a "notebook" computer.

Zenith is betting that worldwide sales of notebook-class computers will reach 100,000 units by year's end, said Zenith Data Systems President John P. Frank.

Minisport, available in two models, features a Daybright screen that is reportedly readable in light ranging from darkness to brilliant sunlight.

It also incorporates a 2-in. minidisk drive. The minidisks hold 720K bytes of data, about the same capacity of 3½-in. disks, Zenith said. The machine's battery can run for three hours between recharges.

Minisport Model 1 will sell for $1,999 and Model 2 for $2,799. Zenith said it will ship the portables next month.



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CA-Cullinet merger puts users in wait-and-see mode

BY AMY CORTESE
CW STAFF

Four weeks after Computer Associates International, Inc. agreed to buy out beleaguered Cullinet Software, Inc., Cullinet customers are keeping their fingers crossed and hoping for the best.

Many Cullinet users contacted last week said it was still too early to tell what impact the merger will have. "We'll probably play a waiting game like everyone else," said Larry Peterman, an information services manager at Sheaffer Eaton, Inc. in Fort Madison, Iowa.

"If CA continues to support the customer base and continues to enhance products, it could be a good thing," said Daniel Sheppard, director of IS at Blue Bird Body Co., a maker of school buses in Fort Valley, Ga.

CA has pledged it will continue to support Cullinet products, but users will have to wait until the acquisition is completed later this summer for more detailed plans.

Doubt bout

However, doubts persist. "They keep talking about keeping multiple databases, but that doesn't make any sense to me," said Rui Figueiredo, manager of business applications at Bausch & Lomb, Inc. in Rochester, N.Y. Figueiredo reasoned that supporting three major database management system products would be an expensive gambit for bottom-line-conscious CA.

Most users agree that there is safety in numbers. "What they got with Cullinet is a large customer base of over 2,000 IDMS customers; they can't drop them," said Jerry Peters, senior vice-president and director of information systems at Exchange National Bank of Chicago.

Peters is concerned about CA's long-term commitment to other Cullinet applications. Exchange National Bank is one of six banks that have purchased Cullinet's banking application. "CA has to buy into the fact that the system is better, not the customer base," Peters said.

CA currently offers a variety of banking products it picked up from Uccel Corp. Although some of these compete with the Cullinet product, there is some synergy between the product lines. Exchange National Bank has written an interface from the CA products to work with Cullinet's application. "In the future, perhaps CA can develop a more elegant bridge," Peters said.

Cullinet customers will be looking for CA to articulate a clear stategy for managing its growing multitude of products. "I see CA as a finance and marketing organization, not a development organization," Peters said. "I worry about a long-term vision."

> "IF CA CONTINUES to support the customer base and continues to enhance products, it could be a good thing."
>
> DANIEL SHEPPARD
> BLUE BIRD BODY

Some customers do not believe CA will drop support of current Cullinet products but are nonetheless eager to learn whether CA will follow through with product plans that were under way at Cullinet.

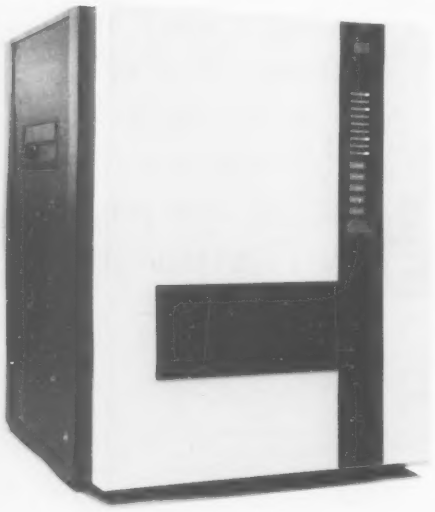
Lois Pollock, manager of information resources at Warner Electric Brake & Clutch Co. in South Beloit, Ill., said her firm is undergoing a major conversion from its IBM mainframe to the Digital Equipment Corp. VAX. Most of the software applications have been converted, Pollock said, except for a Cullinet manufacturing package.

Pollock said Cullinet planned to port its manufacturing resource planning application to the VAX but added that she wonders whether CA will go ahead with the plans.

Some of the most loyal Cullinet customers say an era has come to an end, no matter what CA finally does. "We started with Cullinet when it was called Cullinane [Database Systems, Inc.]," Figueiredo said. "We were in close touch; they understood our problems." However, CA has a different, more sales-oriented culture, he said. Figueiredo likened CA's constantly changing pricing schemes to "wheeling and dealing in a Middle Eastern marketplace."

Cullinet customers continue to have disparate views on CA technical support. While some tell horror stories, others have had pleasant experiences. Peters noted that he has been pleased with CA support in the past and that support for acquired products "continues at previous levels or improves."

Pollock is not worried. "It has been our experience with other acquired CA products that technical support falls through the cracks for a while" but then improves, she said. "I don't know if that's because we're a squeaky wheel."



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COMPUTERWORLD

EDITORIAL

A look at raises

DO THE SENIOR information systems executives of the federal government's largest agencies deserve a 25% raise?

That is the issue Congress will decide shortly when it considers the president's salary proposals. Unfortunately, the real issues will not actually be addressed, given the characteristically queer way Congress does things.

Congress already has rejected one pay hike this year, but not necessarily because IS managers didn't deserve one. The real culprit was public uproar over a proposed Congressional pay boost. So now, Congress will likely try to sleaze its own raise through by bundling it with other raises designated by the president.

An in-depth investigation by the General Accounting Office is needed; the GAO has looked at the issue to some degree and determined the obvious — federal IS executives are not paid as much as their private-sector counterparts.

A more robust study should look into the departure of an increasing number of federal IS managers. Is pay really the primary issue? Perhaps the managers are growing weary of the federal procurement bureaucracy. Or maybe they are tired of not being able to hire at the lower levels of the IS chain because of salaries there.

Such an investigation would at least minimize the arbitrary and capricious Congressional factor in the pay issue.

Paying the piper

Isn't it awful to hear about all those investors who are getting stiffed as an increasing number of junk bond issuers default on payments of the high-yielding notes?

In fact, it *is* awful for the investors, because they are now among the many other victims of corporate raiders who have been allowed to plunder so many companies in highly leveraged buyouts (LBO) and buyout attempts.

The junk bonds, which are the key component of the LBO Ponzi scheme, have given raiders the means of taking over multimillion- and multibillion-dollar firms. The firms are often then systematically dismantled, the proceeds of which are supposed to fund the bond payments. The difference between those payments and what is raised by auctioning off the company goes to a handful of investors, lawyers and bankers.

Oh yes, scores of people often lose their jobs in the process of restructuring while productivity, competitiveness and innovation all suffer.

But now, the scheme is showing signs of unraveling within the marketplace, and several states, including Massachusetts, have enacted laws designed to curb highly leveraged raids. The federal government has so far been content to sit on its hands and let this LBO drama run its course. As a result, these shenanigans and the havoc they wreak will continue, although perhaps less aggressively.

LETTERS TO THE EDITOR

Cover up

I was disappointed to learn that one existing method for protecting computers from fire, water and smoke damage was consistently left out of "Data-center showers may be halon option" [CW, July 3].

I have reviewed disaster recovery plans and data center security procedures at various companies. I generally found that any single preventative method was not sufficient to ensure computer hardware would not be unnecessarily damaged during a disaster. A generally accepted approach is to have combinations of fire alarms, smoke and water detectors, handheld fire extinguishers, halon, sprinklers and computer covers that provide overlapping coverage.

As an EDP auditor, I found that computer covers offer additional protection, have been around for several years and can be manufactured to resist or prevent fire and water from damaging computers.

Finding a replacement for halon is important; however, developing technologies for protecting computer hardware, such as automatic computer covers and waterproof cabinets, should also be given consideration.

Jon L. Campbell
Honda North America
Torrance, Calif.

No slump

Regarding "Can AS/400 avoid sophomore slump?" [CW, June 19], after three migrations from System/36 to AS/400, I feel that the migration aid does an excellent job and keeps a detailed audit trail. In every case, all the programs and procedures migrated properly and executed without additional modifications.

As with all system transitions, there are bound to be some problems, but we have managed to keep them to a minimum with proper planning and by not rushing the migration. Most System/36 execution environment problems were corrected in Release 1.2 of OS/400. Although there are some performance issues still outstanding, many of these can be traced to undersized memory. The one thing the System/36 execution environment likes is system memory; this environment is very sensitive to the amount of available memory. Another pitfall is in the way many System/36 jobs are designed. Many System/36 jobs do some batch work in interactive mode; this leads the AS/400 job to time-slice, which causes the job to run slower.

Remember that the System/36 environment was never meant to be a permanent home for AS/400 applications; however, it does provide an excellent platform for converting your applications to the native environment in a controlled manner.

John DiPalo
Technical Support Manger
ARMS, Inc.
Cherry Hill, N.J.

We're here . . .

"Up and down trends in systems integration" [CW, June 5] states that there are no systems integration firms combining traditional project skills with network technology. I quote: ". . . for now, we can only wait."

My comment is, "No need to wait!" There are a number of specialized and innovative companies providing systems integration services that combine traditional systems integration skills with communications, networking and connectivity experience. The problem is that most of us are smaller specialized companies that don't have the visibility of the larger, more well-known firms.

In today's world of increased specialization, one should be careful in making such generalized comments; take the time to mention the little guys, who in fact account for a significant piece of today's systems integration market.

Tucker McDonagh
President
Tucker Network Technologies
S. Norwalk, Conn.

Red scare

"Peace, love, not look-and-feel" [CW, May 29] referred to the MIT protesters at Lotus Development Corp. as anticopyright activists, just like some members of the press referred to the protesters of the 1960s as commies.

My question is, how did the writer come to the conclusion that the protesters were anticopyright? In fact, just by following *Computerworld* reports, I get the impression that Minsky and his colleagues are strongly pro-copyright [CW, May 1]. However, it is more than clear that they are anti-copyright abuse or anti-copyright tyranny.

K. C. Toh
Unidata SDN BHD
Malaysia

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31. Dir., Mgr., Supv., of Programming
32. Programmer, Methods Analyst
35. Dir., Mgr., Supv., OA/WP
38. Data Comm. Network/Systems Mgt.

OTHER COMPANY MANAGEMENT
11. President, Owner/Partner, General Mgr.
12. Vice President/Asst. VP
13. Treasurer, Controller, Financial Officer
41. Engineering, Scientific, R&D, Tech. Mgt.
51. Sales/Mktg. Mgt.

OTHER PROFESSIONALS
60. Consulting Mgt.
70. Medical, Legal, Accounting Mgt.
80. Educators, Journalists, Librarians, Students
90. Others _____
(Please specify)

3. **COMPUTER INVOLVEMENT** (Circle all that apply) Types of equipment with which you are personally involved either as a user, vendor, or consultant
A. Mainframes/Supermins
B. Minicomputers/Small Business Computers
C. Microcomputers/Desktops
D. Communications Systems
E. Office Automation Systems
F. No Computer Involvement

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To be high-tech or not to be

MICHAEL B. COHN

High-tech is an amazingly profitable industry. Sure, it's had its ups and downs, but lots of people in this business are pulling down some big bucks. Of course, I have not been all that fortunate in cashing in on some of this windfall, although I did get a $50 gift certificate once for making my manager a nice set of flowcharts.

By now I figure some of the world's other industries may be catching on. They may have wondered how a bunch of techies like us have managed to buy beachfront condos, ski equipment and cars that don't have wood paneling on the sides.

So what would happen if some of these businesses were bent on emulating our success? Imagine what would happen if, instead of trying to make what we make, they tried to make things *the way* we make them? What would happen if, tomorrow, everybody else tried to do business the way we do business?

CINCINNATI — Kidde & Cuddle caught the booming baby products industry off guard today by announcing its revolutionary Mega-Cling Disposable Diapers 10 months ahead of schedule. Mega-Cling is the first diaper of its kind to safely and automatically attach itself to a baby's bottom without pins, tape or even the assistance of an adult. When asked about any future enhancements planned for Mega-Clings, K&C responded, "We still haven't figured out how to get them off, but we will have that worked out in a future release."

TRENTON, N.J. — In an unprecedented show of force today, Electro American Telephone announced that it was changing the standard key pad design on all of its push-button telephone models. In its place, the company will now only support and manufacture its own design, which swaps the positions of the 0 and the 1. "This may cause a rift in the industry," advised an EAT spokesman, "but we found that the new arrangement is much more efficient. We've switched the entire company over to our new standard . . . we anticipate that customers will be eager to do likewise."

DETROIT — The automobile industry today rallied behind Generic Motors' long-awaited announcement of its Standard Automotive Accessory Arrangement (SAAA). Said one auto parts dealer, "This will simplify the entire Generic Motors line. SAAA will soon ensure that all GM parts are interchangeable . . . every part they make will soon fit in any of their cars." Though a Generic Motors spokesman would not commit to when all parts would comply with SAAA, he did preannounce two SAAA products that would be available early next year: Generic Motors windshield-wiper fluid, and those little pine-tree-shaped air fresheners that hang from the rearview mirror.

PAUL FISCH

MADISON, Wisc. — Breaking with long-standing tradition, Wisconsin Homogenized Enterprises National (WHeN) today announced that it would soon market single-serving milk cartons to the general business community.

Originally committed only to providing its dairy products to school lunchrooms and institutions, WHeN suggested that offering its recognizable cube-shaped milk cartons to the public might be a promising source of revenue. The cartons, which sell for 15 cents in the school lunch program, will be available only at selected retailers in the Midwest. "The public's price for a single unit has not been determined," said a WHeN spokesman, "but we're considering something between 30 cents and $10,000."

MOUNTAIN VIEW, Calif. — Timepiece, Inc. has fired the first salvo in what might be an industry-shaking lawsuit involving the unauthorized use of Timepiece's copyrighted character set and icons. Timepiece's 48-count filing contends that rival watch and clock-making companies have repeatedly used, without permission, the circular display of the numbers one through 12, and the proprietary term "o'clock." A timepiece spokesman today warned that any company, publication or institution that continued to infringe upon Timepiece's "intellectual property" would be liable for considerable punitive damages. The matter is scheduled to be taken up in a San Francisco courtroom today, when the big hand is on the six and the little hand is on the nine.

Cohn is a quality assurance representative based in Atlanta.

Break the system software gridlock

DALE KUTNICK

Despite the best efforts of system vendors and third-party software suppliers, the IS industry continues to be plagued by slow software development, particularly in system software. While hardware developments (in both memory and processor power) continue at a dizzying 25% to 35% annual improvement, software productivity is moving ahead only 7% to 10%.

Most of this improvement in software is focused on the actual coding process, where structuring techniques, fourth-generation languages and application generators have been a tremendous boon for developing relatively simple application programs, enabling end users to customize applications and create a variety of reports.

Standardization of user access and application program interface technologies coupled with object-oriented management software — a common global directory — as well as networking and naming services will further insulate users from the underlying connectivity and programmatic subsystems. These are critical steps that will enable users to expand application generation activities without having to become more technically literate.

Complex systems

These software tools have done little to improve the development of complex systems software, particularly that which is required to run large networks of intelligent devices, or even a large data center. The problem is that these environments contain multiple, evolving variables whose interrelationships are often ephemeral at best. This is one of the reasons why few systems vendors have been able to develop highly functional network architectures and logical network management systems.

Expert systems and CASE technology should eventually be able to address this problem by automating the design, analysis and entity relationships in large-scale software projects — and linking them into a relational or object-oriented database management system. Ultimately, this approach should enable organizations to improve the functionality, reliability and delivery time of complex software.

Another major software issue facing both users and vendors is software maintenance (including extensions to current software). This currently consumes 60% to 80% of both users' and vendors' software resources. Investment in "developed software" assets is billions of dollars, and preserving and extending them is a high priority, because often (as is the case with users such as airlines) software is inextricably linked to the business.

Any significant function of new programs must be linked back through the old software (via complex layering) to endure compatibility and prevent business interruptions. This stretching makes the older programs even more fragile, but equally important, it adds more complexity, creating a vicious cycle that requires constant patching.

The challenge ahead will be to create totally new programs from the functional specifications of the old software. Again, expert systems and other artificial intelligence techniques could come to the rescue, but not in the near future.

Even in the PC world, the software gridlock has been pervasive. PC-DOS has been with us for almost nine years, and it still shows strong life signs. OS/2 encountered repeated delays, and although it is a hardware-resource guzzler, few applications have yet been written to fully exploit its capabilities because complete application development tool kits (including the graphical Presentation Manager) have only recently been released. Two of the major PC subsystem developers — Ashton-Tate and Lotus — repeatedly stumbled in releasing their latest versions (Dbase IV and 1-2-3 Version 3.0 respectively).

Preventing desires

While these PC software delays have had minimal impact on PC shipments to date, they have prevented users from gaining the cooperative processing capabilities they desire.

Indeed, these limitations have encouraged software suppliers to spend significant research and development dollars writing awkward "patches and extensions" to PC-DOS. This has diverted their attention from more important, future-oriented products.

The result of this gridlock will be that OS/2 will evolve slowly in the 1990s — in terms of gaining more advanced operating-system functions — and grow up to challenge minicomputer operating systems such as Unix, VAX/VMS and OS/400.

There is no question that pushing a small operating system upward to handle more advanced functionality is more difficult than bringing a large operating system down.

Despite some advances, software still tends to be a "black art" practiced by nocturnal creatures with plastic pocket protectors. Complex software development seems to take a combination of skills — discipline, creativity, ingenuity, foresight and perseverance — that computer vendors and large users have been unable to "bottle."

With the appropriate tools — fifth-generation languages and application generators backed by expert systems — software development will increasingly move from the wizards to the end user, particularly for personal applications. But in the end, it will be software tools that enable developers and end users to exercise the creativity that will break the software gridlock.

Kutnick is president of Meta Group, Inc., a market assessment/consulting company in Westport, Conn.

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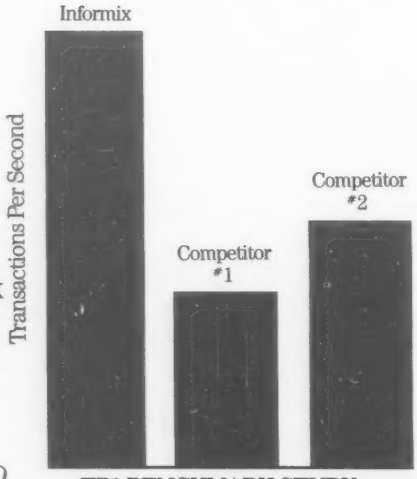

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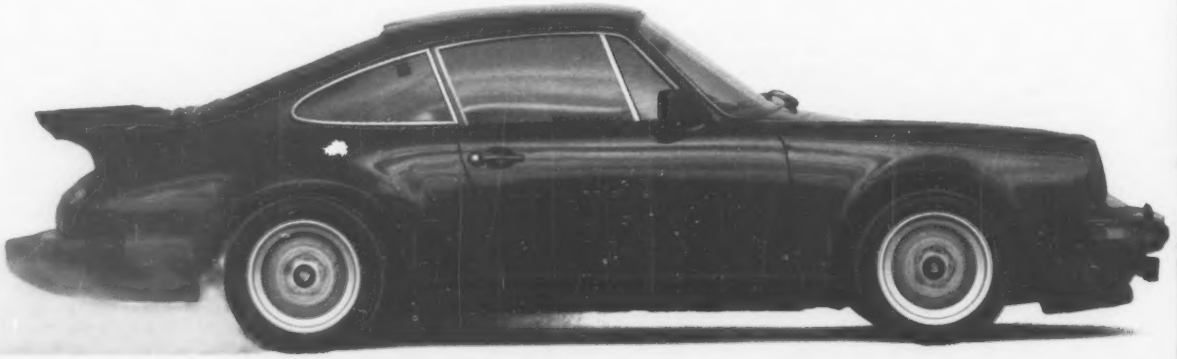

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SOFT TALK

Stanley Gibson

Cullinet's fall a harbinger?

During its lifetime, Cullinet served as a bellwether for the software industry. Probably because it was the first software company listed on the New York Stock Exchange, people tended to look to it as a leader.

Other database management system vendors can now hope that Cullinet's fate is not a harbinger for themselves. But the trend that dogged Cullinet will be hard for them to fight.

That trend, exemplified by IBM's DB2, is that hardware vendors are aggressively selling their own DBMSs, which they are more closely linking to proprietary operating systems and hardware.

The impact of DB2 has been chronicled at length. But no sooner did Cullinet launch into the DEC market with new DBMS products developed at great cost than DEC began to

Continued on page 28

Inside

- London-based firm opts for AS/400s. Page 25.
- Tesseract, Walker join forces. Page 25.

Low-cost windowing in sight

ANALYSIS

BY AMY CORTESE
CW STAFF

Terminals that can run the X Window System are being rushed into the market as vendors seek to forge a new desktop category for users who want the functionality of a windowing environment but cannot justify the expense of a dedicated workstation.

Digital Equipment Corp. recently affirmed it would offer its own terminal running Decwindows this fall. At its July 11 announcement, a black-and-white terminal running Decwindows was demonstrated, although details on pricing and availability were not given.

X Window display terminals, complete with a mouse and graphical interface, have become available in recent months from such vendors as Acer Counterpoint, Inc., Visual Technology, Inc. and Network Computing Devices, Inc. (NCD).

The availability of such terminals — which at $1,000 to $3,000 are less than half the cost of most workstations — may increase acceptance and support of X Window System and implementations of it such as Decwindows. X Window, which grew out of MIT, has gained widespread acceptance as a vendor- and hardware-independent networked windowing system.

DEC plans to offer a monochrome display terminal in the fall, to be followed in six months by a color model with an imaging option, according to a DEC official.

The family of display terminals from DEC will run with both VMS and Ultrix and will have access to all facilities in a network. The terminals expand the range of platforms that take part in DEC's Network Application Services integration scheme. In addition to Decwindows, the terminals will use other common services such as the Compound Document Architecture and SQL Services. In contrast, IBM's Systems Application Architecture desktop windowing environment requires a Personal System/2 running OS/2 with Presentation Manager and does not make provisions for character cell or other types of terminals.

Early users of X Window terminals are sold on the concept. Gerald Siddons, director of scientific computing for the division of epidemiology and biostatistics at the Dana-Farber Cancer Institute in Boston, has found that windowing terminals are perfect for many of his users — statisticians who work with a lot of text but do not need all the power of a workstation. Siddons has purchased a handful of NCD terminals and is eagerly awaiting the DEC terminals.

According to market research firm International Data Corp. (IDC) in Framingham, Mass., 1,300 terminals were shipped by the end of the first quarter between NCD and Visual Technology, and the total number is expected to reach 8,000 for the U.S. by year's end.

In addition to the handful of players now offering windowing terminals, IDC predicts that oth-

Continued on page 27

DEC *promises a terminal running Decwindows in the fall*

Low-end RISC systems boost MIServer line

BY J. A. SAVAGE
CW STAFF

MOUNTAIN VIEW, Calif. — Adding more marketable low-end multiuser Unix machines to its MIServer line, Pyramid Technology Corp. last week announced two new products, an Office MIServer and a Department MIServer.

This follows a February announcement of its Corporate MIServer, a reduced instruction set computing (RISC) machine that can go up to 140 million instructions per second (MIPS) and scale from four to 12 processors.

"I don't think the part of corporate America that does mainframe computing is going for a [large] Unix machine. At the upper end, they won't sell many. At the lower end, it's a different story," said analyst Robert Kidd at Dataquest, Inc. in San Jose, Calif. But he said there is also more competition at the lower end and that there is "nothing spectacular" about the new systems.

Jeanette Sill-Holeman, an analyst at Infocorp in Santa Clara, Calif., agreed there are "not many people out there who need a monster server" but said that the high end of the product line is available for growth.

"Lots of offices are looking to try the technology and see if it works," said Terry Retford, director of systems marketing at Pyramid.

At the lowest end, the Office MIServers are available with one or two processors and can support up to 128 users, according to the company. Those computers are based on Mips Computer Systems, Inc. RISC architecture. The minimum configuration starts at $30,000.

The Department MIServer is based on Pyramid's proprietary RISC architecture. The computers can support up to 512 users with 56 MIPS in a one- to four-processor configuration, according to Pyramid. The minimum configuration for the Department MIServer is priced at $138,000.

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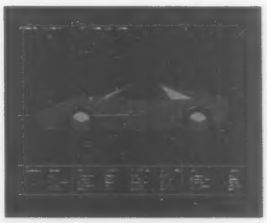

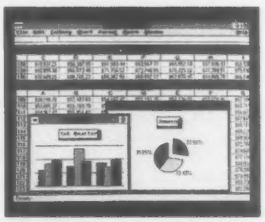

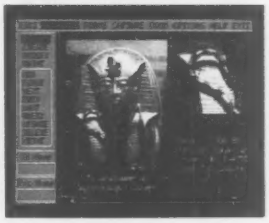

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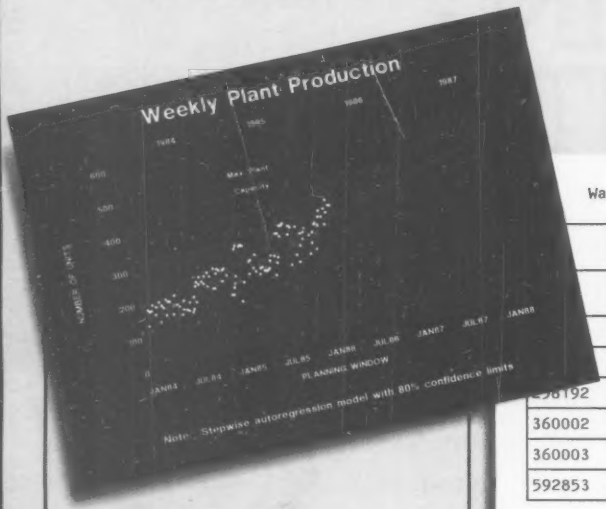

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	Quantity on Hand	Quantity on Order	Projected Reorder Date
	123980	10000	THU, FEB 12, 87
	89450	5000	FRI, FEB 20, 87
98192	20110	1000	MON, MAR 30, 87
360002	8585	0	TUE, FEB 10, 87
360003	15985	500	TUE, FEB 10, 87
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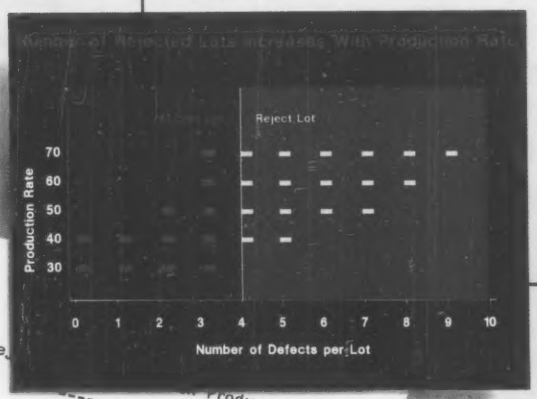

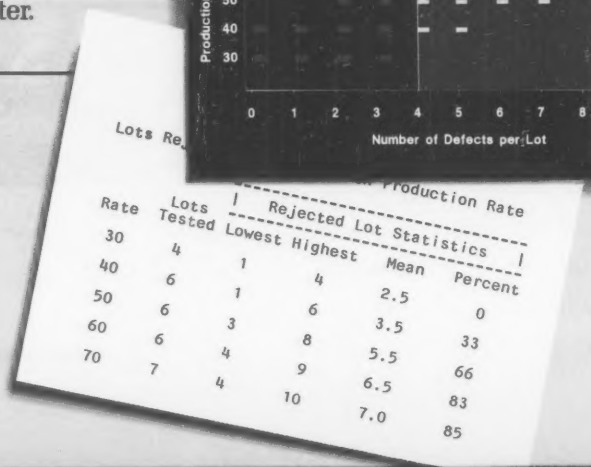

* Computer Intelligence, January 1986.

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digital™ Cooperative Marketing Program

UK firm updates with global net

BY MARYFRAN JOHNSON
CW STAFF

A multinational firm whose roots extend to 19th-century England has jettisoned its hodgepodge of computers in favor of an integrated network of IBM machines and coordinated business and manufacturing software.

The worldwide installation of two dozen System/38s and Application System/400s by the London-based Johnson Matthey PLC is under way now, with eight AS/400 installations planned this year for its offices in the U.S., Europe and Asia.

"Our mission is to put more money in the bottom line," said Tom McLenahan, information technology director for JM's 12 North American sites. "We viewed the AS/400 as a product available worldwide, with a very strong distribution and support network."

McLenahan *looks to bottom line*

The company is approximately midway through a five-year information technology strategy change that began in 1987. One agent of change in the company's high-tech approach was a major financial upheaval in 1986, blamed in part on poor information exchange between company offices and lack of proper internal controls. The problems cost the firm $600 million in losses from its jewelry and banking areas and highlighted the need for a coordinated computing environment.

"The bank problem involved a number of bad investments and some deals in gold," McLenahan explained. "Basically, it was a control breach. We didn't have the information we should have had.

"What the new system does is provide a lot of consistent reporting, which provides information to management to allow better control," the information technology director added. "Mismanagement can still happen, of course, but it won't be through lack of accurate and available information."

With 10,000 employees in 28 countries, JM is the largest precious metals supplier in the world that deals in platinum-group metals.

The company, founded in 1842, also has divisions supplying electronic materials to the semiconductor industry. It produces about 75% of the world's catalysts for catalytic converters.

"Essentially, we're integrating the fiefdoms into one corporation with central accounting," said company spokesman Joseph Povey.

The company chose software packages for its business applications from Denver-based J. D. Edwards & Co. The manufacturing end of the business will rely on applications from Data 3 Systems, Inc. in Santa Rosa, Calif.

"We wanted fully integrated software designed to run on the System/38 and take advantage of its architecture," said Paul Pronsati, information systems manager at JM's North American headquarters in Valley Forge, Pa. He and his 13-member staff function as in-house experts on the software, sending troubleshooters on the road as needed.

"One benefit of having common software is you can have a centralized center of expertise. We don't have to have experts in 10 different software packages," Pronsati said. "It's not that often you get this cross-continent support for software."

That support was noticed in Washington state, at one of the corporation's newly acquired businesses.

"We went cold turkey last October with the AS/400 accounting system and left our old homegrown one behind," said Ruth Gustafson, IS supervisor for Johnson Matthey Electronics in Spokane. "It's been nice to be able to call on the people in Valley Forge for help."

McLenahan calls his information technology strategy a "cookie-cutter approach" — and what pops out of the oven is supposed to taste as sweet as increased productivity and cost savings. "The savings are pretty hard to quantify right now," McLenahan said. "We're spending somewhere around $50 million on this project, and we expect our return on investment to exceed 35%."

Refocusing the company's information technologists on business applications and problems — rather than on writing code — was another important change, the information technology director said.

Unwilling to wait for the debut of the AS/400 in June 1988, JM began installing System/38s two years ago.

"Our System/38 strategy was really a folded 38/400 strategy before we knew the name [of the AS/400]," Pronsati said. "We bought the 38s knowing that whatever the new machine would be called, Silverlake or whatever, it would be compatible."

While Digital Equipment Corp. in Maynard, Mass., was a strong contender, JM executives were won over by the broader range of vendor-supplied commercial software available for IBM's midrange machines.

"A lot more people are writing commercial systems software on IBM than DEC," Pronsati said.

J. D. Edwards is a vendor of business applications for the AS/400 and System/38 exclusively and has more than 1,250 customers worldwide, said company spokeswoman Ann Rovin.

Pronsati, *an in-house software pro*

Of particular interest to JM was the software's capabilities in multicurrency accounting. Among the 36 software packages the information technology experts examined, few were able to process detailed financial transactions in up to 24 different currencies.

Given JM's smaller operations, the ability to customize their own reports and provide consistent reporting throughout the corporation were other key factors in the strategy.

"When we bring up new organizations, it will cost less to integrate them into Johnson Matthey," McLenahan noted. "If you don't do this kind of stuff, you'll be out of business."

Light ages

At Johnson Matthey Electronics' plant in San Diego, the firm went from an archaic computer time-sharing plan on a Xerox Corp. mainframe in Los Angeles to having its own IBM AS/400 on the premises.

"We love it. So far, so good," said William Daubert, site controller at the 55-employee company. "We've had our accounting system up and working on it for six months."

Some initial "teething problems" during installation were quickly resolved by that legendary IBM service, Daubert said. "The disk drive and tape drive [crashed] the first week, and IBM was out in less than 60 minutes both times," he said. "When the tape drive failed, the machine phoned up IBM before we even knew about it. I was very impressed."

Accounting efficiencies with Denver-based J. D. Edwards & Co. software running on the AS/400 "enabled us to avoid hiring another accounting person," Daubert said. "In another year, I expect the same efficiencies in our manufacturing."

By then, the firm will have installed a closed-loop manufacturing package from Data 3 Systems, Inc. in Santa Rosa, Calif. Eventually, all the company operations will be electronically linked.

"Right now, there's a lot of shrieking back and forth on the telephone," he said.

Daubert envisions a system flowing smoothly through computerization — from the initial customer call through the accounting and payment process and finally to shipping the product out the door. "The worst thing you can do is say you'll ship product X tomorrow and then not do it," he said. "We don't want to get that reputation."

MARYFRAN JOHNSON

Tesseract, Walker to be financial software allies

BY ROBERT MORAN
CW STAFF

Tesseract Corp. and Walker Interactive Systems this week entered into a strategic alliance to combine the power of their human resources and financial software for IBM's DB2 database.

The two San Francisco-based companies plan to develop a seamless integration of their software and to share resources for research and development. Although they will continue to sell their software independently, the companies will share facilities and sales and support services.

Brownlee: *Joint product is ready*

Peter Kastner, a vice-president of the Aberdeen Group, a consultancy in Boston, viewed the alliance as part of a larger trend to fill a shortage in the number of software houses that can fulfill the DB2 needs of Fortune 1,000 corporations. "We are projecting a further consolidation of hardware vendors in the industry," Kastner said, "and you will see it on the software side as well."

According to Kastner, Aberdeen research indicates that the majority of large IBM sites have pinpointed DB2 as their strategic direction, making the database the de facto standard for large corporations. As a result, Kastner said, "it becomes a no-brainer for software houses to begin to blend their applications using DB2."

The companies plan, for example, to integrate such systems functions as employee expense, third-party payment and payroll accounting across both systems. In addition, the products will provide common user access, common tool sets and data sharing. To eliminate data redundancies, for example, data common to both systems will be maintained in one place.

Prices have not been set, but David Brownlee, president of Walker Interactive Systems, said that a joint product is available, and the companies expect to deliver a version with seamless integration by next quarter.

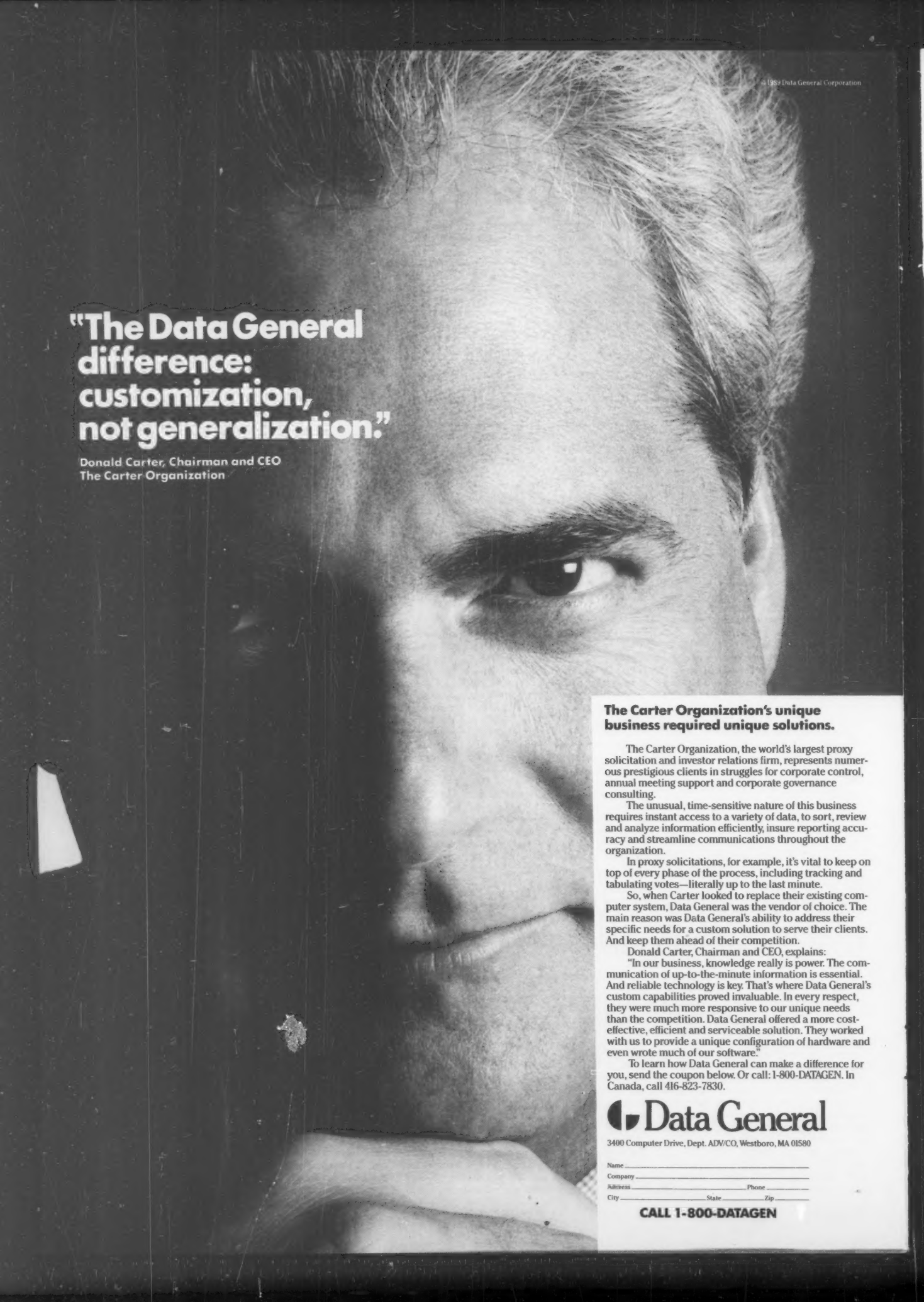
According to Brownlee, "It will be many years before the so-called single vendors have an integrated DB2 product line and can even challenge us."

Leckonby *is president of Tesseract*

Not so, said Kastner, who does not view the companies as presenting an immediate challenge to the market leaders, Management Science America, Inc. and McCormack & Dodge Corp. Both companies have announced systems that embrace cooperative processing on IBM's Systems Application Architecture, which implies DB2, Kastner said. By working together, however, Tesseract and Walker can gain size, marketing clout and potentially more sales, Kastner said.

The alliance was formalized after both companies netted a $1.1 million contract with Stone and Webster, Inc., an engineering company based in Boston.

William Leckonby, president of Tesseract, said, "Stone and Webster was not the impetus for the alliance but the straw [that broke the camel's back]."



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DEC downsizes VAX chip

BY ROSEMARY HAMILTON
CW STAFF

When Digital Equipment Corp. announced the VAX 6000 Model 400 earlier this month, the company was not just trotting out the latest revved-up version of its 6000 microprocessor.

Instead, the firm was introducing a new CMOS-based chip on which the fundamentals of DEC's 8800 series were brought down to a microprocessor level.

In short, DEC took the 8800's nine-processor board configuration and reduced it to one 11- by 10-in. microprocessor board, according to Robert Supnik, a DEC corporate consulting engineer who serves as technical director of the company's semiconductor engineering group.

DEC really did not have much of a choice, however. The CMOS-based microprocessor used in the first two generations of 6000 systems — the 6200 and 6300 — quickly reached its limits. The 6200 processor ran at 80 nsec. The 6300, which was a souped-up version of the 6200, operated at 60 nsec. According to Supnik, that CMOS implementation could have been speeded up only slightly more.

What DEC wanted was a microprocessor that could run at 28 nsec, and it was able to get that with this miniaturized 8800 chip. Supnik said his group could have tried other design implementations, but it scaled down the 8800 because it was a known, proven technology.

"This one was the most straightforward way," he said. "We could be assured that there wouldn't be any surprises."

The project took three years. According to Supnik, not all of the 8800's attributes could be pulled down to the microprocessor level, but the team was able to implement the basic architectural principles on the smaller scale.

For example, the 8800's pipeline design, which allows more than one system instruction to be in progress at one time, was duplicated on the 6000 Model 400. Both used a six-stage pipeline design, whereas the first two generations of the 6000 systems were restricted to a four-stage pipeline.

However, Supnik said the team was not able to bring over the 8800's control-store program, which is microcode that implements the system's instruction set: "On the 8800, there are 2¼ million bits of microcode, and on the 6400 chip set, there are 86,000. That kind of reduction required a lot of rethinking.

"We looked at some designs that would have involved using more chips," Supnik said, "but we concluded that they didn't bring any advantage to the customer. The advantage of using the 8800 is that some of our design problems were solved in advance."

Windowing

CONTINUED FROM PAGE 21

ers, including Hewlett-Packard Co., will enter the market. Bill Carrico, president of NCD, said that initial sales have been largely to scientific- and engineering-oriented customers. He said he is, however, seeing more interest from the commercial world. Carrico suggested that DEC, by offering a Decwindows terminal for VMS, will begin to open up the commercial marketplace.

David Renaud, director of technical services at Grinnell Mutual Reinsurance Co. in Grinnell, Iowa, is one commercial user who agrees. "A low-end imaging workstation would be of high interest to us," Renaud said, but he added that he is interested in a tightly integrated product that DEC could offer.

Grinnell Mutual has different needs in terms of complexity and throughput, Renaud said. Although many users are currently using personal computers running Microsoft Windows, Renaud said windowing terminals would be advantageous in bringing DEC functionality, such as imaging capabilities, to users not taking advantage of these features at this time. Such terminals "may slow the expansion of PCs but only if the PC-emulation capacity is adequate enough in terms of speed and functionality."

> "DEC IS A terminal-to-host-oriented company. It makes a lot of sense for them."
>
> BILL CARRICO
> NETWORK COMPUTING DEVICES

A Decwindows terminal offering from DEC had been anticipated. "DEC is a terminal-to-host-oriented company," NCD's Carrico said. "It makes a lot of sense for them."

However, reports surfaced earlier this year that the prototypes were slow and mercilessly resource-consumptive; one source inside the company disclosed that four terminals running Decwindows could bring a Microvax "to its knees."

However, DEC officials claimed the upcoming terminals would perform faster and at a more competitive price than what is currently available on the market. A DEC spokesman said memory requirements will vary depending on the application.

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PILOT EXECUTIVE SOFTWARE

Gibson

CONTINUED FROM PAGE 21

emulate IBM by bundling a runtime version of its RDB with the VMS operating system. Because a user's reliance on a DBMS is so great — installing a DBMS is often a commitment of a decade or more — many users feel better when they are buying both hardware and DBMS from a stable hardware vendor.

A user I spoke with recently said he felt secure using a fourth-generation language (4GL) from an independent software vendor, but he did not have the same feeling of security buying a DBMS from an independent. The specter of his DBMS vendor having problems and being unable to support the product was too daunting. On the other hand, he said he would find it comparatively easy to switch to another 4GL if he had to.

CULLINET'S problem was that in the face of a changing database landscape, it failed to perceive the changes. If its timing in the 1970s was great, its timing in the 1980s was terrible.

Cullinet's fate will just serve to reinforce this trend by confirming users' suspicions of vendor instability. The list of independent software vendors that have been suffering is long and growing. There are contrarian firms, however, such as Oracle, which, despite the predictions of some software industry analysts, have yet to hit the wall.

Cullinet's problem was that in the face of a changing database landscape, it failed to perceive the changes. If its timing in the 1970s was great, its timing in the 1980s was terrible. Cullinet actually did all the right things but at all the wrong times. A case can be made that Cullinet could have been as successful as Oracle in the 1980s if its timing had been better.

The difficulty of reversing Cullinet's downward spiral is highlighted by comments that Cullinet's Bob Weiler made recently to a *Computerworld* reporter. Weiler said that an article in the *Wall Street Journal* that appeared earlier this year detailing Cullinet's woes cost the firm $8 million in delayed or canceled sales. Weiler said he could attribute the losses to the article. Each time Cullinet coughed, it drove more potential customers away.

Thus, user perception is more important than reality. Users will wait patiently for IBM because they believe IBM will come through in the end. But should an independent vendor show weakness, users will become nervous and bolt.

The great challenge for Computer Associates, now that it has swallowed Cullinet, is to fulfill the promise of stability that is implied by its ever-increasing size. All the aspersions that have been cast its way will be forgotten if it proves capable of providing choices to users over the long term, something its component companies, in the end, could not do.

Gibson is *Computerworld's* senior editor, software.

HARD BITS

IPL boosts 4381 memory line

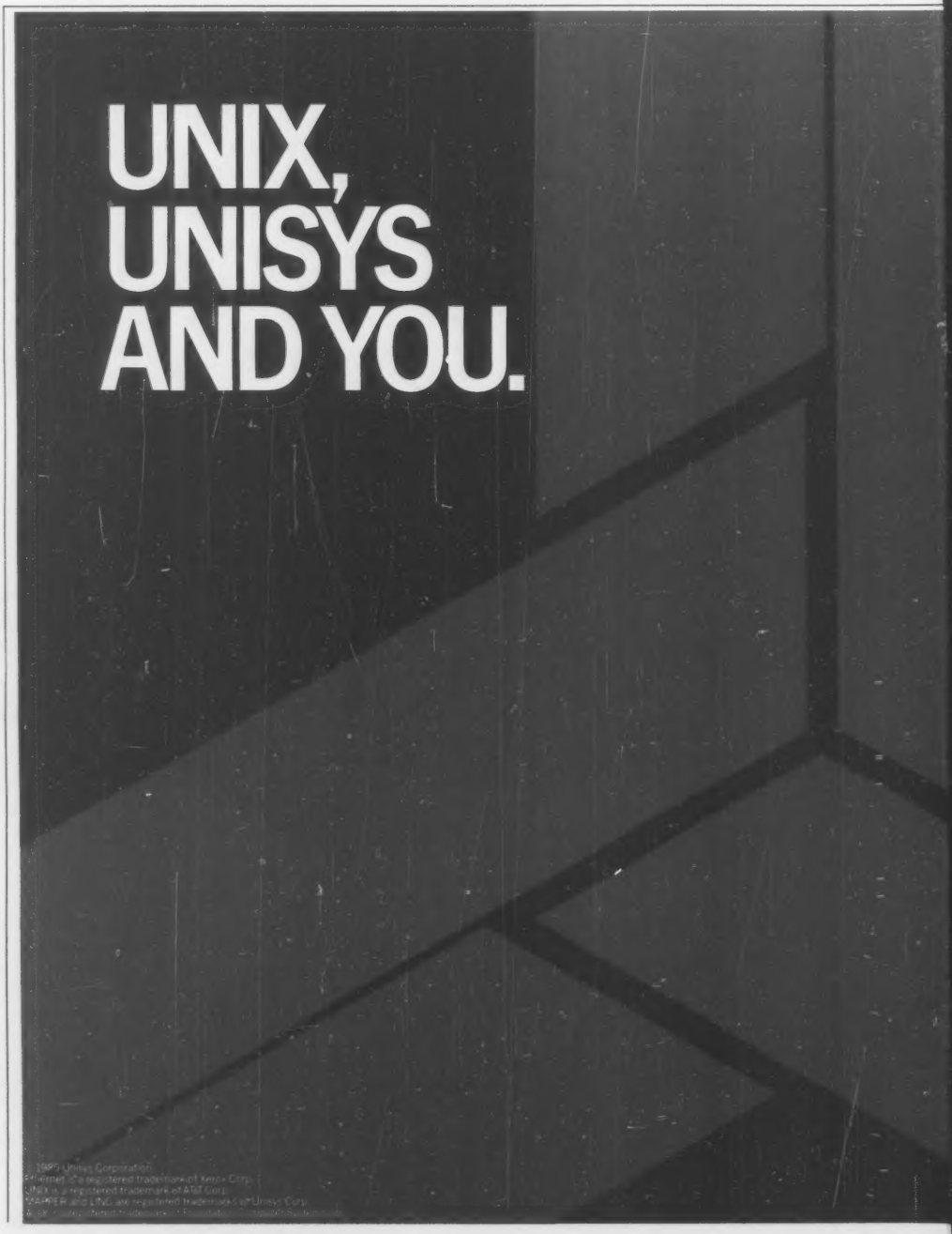
IPL Systems, Inc. beefed up its memory product line for the IBM 4381 last week by adding 8M- and 4M-byte cards for the higher end 4381 models. Last year, the company came out with 2M- and 4M-byte add-ons for the lower end 4381s. The memory cards will work with the 4381 Groups 22 through 24 processors as well as the IBM MVS/ESA-capable systems, the 91E and 92E, according to the company. An early release program for the memory cards has just begun.

Data General Corp. announced a plan recently to service and repair non-DG products, including computer equipment and peripherals. The company said it will extend customers' maintenance agreements to include up to 100 products from other vendors that they may have linked to their DG systems. The products include modems, disk drives, displays, printers and controllers made by such companies as Control Data Corp., IBM, Storage Technology Corp. and Hewlett-Packard Co.

DG also announced that Sartox Data Systems will offer its Sunpac automated student and financial accounting software on DG's MC line of proprietary minicomputers as well as its newer reduced instruction set computing-based systems, called the Aviion line.

Tech Data Corp., a reseller of microcomputers and minicomputers, recently signed a deal with **Unisys Corp.** to resell the company's low-end Unix-based systems. Unisys said the deal could represent up to $50 million in new business. This is Tech Data's first Unix-based product. The agreement calls for Tech Data to resell the U 6000 series, which is based on the Intel Corp. 80386 microprocessor.

Sony Microsystems Co. said it will use **Parallex Graphics, Inc.**'s graphics and videographics display controllers as part of its News line of Unix systems.



NEW PRODUCTS — SOFTWARE

Development tools

A system that contains five commands and manages changes in the product design and development life cycle has been released by Team One Systems, Inc.

Called the Engineering Change Order (ECO) system, the product reportedly integrates the user's current environment of tools and applications with AT&T's Unix operating system commands and utilities and with other Team One products such as the Object-Oriented database management system and applications. Available on Sun Microsystems, Inc. workstations running SunOS Release 3.5 or 4.0, ECO costs $500 more per node.

Team One
Suite 178
2700 Augustine Drive
Santa Clara, Calif. 95054
408-986-9191

Hypersoft Corp. has announced a VAX-based tool for reverse-engineering of existing applications. Application Browser is said to provide both an interactive and hard-copy road map of Cobol applications. The vendor explained that the ability to see the application logic and program-control flow helps developers analyze changes to code and aids in training on applications. The tool handles Cobol from Digital Equipment Corp.'s VAX, Decsystem-10s and -20s and IBM mainframes.

Prices vary according to the CPU, ranging from $3,000 for the Vaxstation to $40,200 for the VAX 8840.

Hypersoft
675 Massachusetts Ave.
Cambridge, Mass. 02139
617-864-8860

Flexus International Corp. has released Version 1.0 of CICS SPII, a microcomputer-based programming tool used to design and implement Cobol- and mainframe-based end-user data entry systems.

The software reportedly allows users to develop interfaces for applications before writing any Cobol code. The screen components of the interfaces can be incorporated subsequently into a working system model and prototyped at the micro level, the company said. The product is priced at $795.

Flexus International
P.O. Box 9199
Morristown, N.J. 07963
201-895-4724

Applications packages

Infolink Software, Inc. has announced upgrades to its IBM DB2 application product that are reportedly designed to help manage changes and problems in the production environment of a mainframe site.

According to Infolink, Information Management Problem and Change Tracking (Impact) is a menu-driven system using IBM's ISPF and SQL to provide options that guide the user through the system and enable him to select appropriate panels for controlling changes to be implemented and creating customized reports.

A perpetual license costs $35,000.

Infolink Software
Suite 603
1400 Fashion Island Blvd.
San Mateo, Calif. 94404
415-574-3305

Batch Process Technologies, Inc. has released Bash, a picture-oriented database support package for use with the firm's Batches simulation software product.

Designed for simulating batch and semicontinuous chemical processes, Bash allows users to build and analyze models via on-screen graphical displays, the vendor said. Features reportedly include animation playback and result summarization capabilities.

Depending on the type of hardware configuration available, Bash and Batches together are priced from $50,000 to $95,000.

Batch Process Technologies
P.O. Box 2001
W. Lafayette, Ind. 47906
317-463-6473

Global Software, Inc. has announced its Miscellaneous Customer Billing and Accounts Receivable System (MCBARS) for the utility industry.

Running on IBM mainframe and minicomputers, including the Application System/400, MCBARS reportedly provides miscellaneous billing for damage claims, service construction and maintenance.

MCBARS costs from $125,000 to $250,000, depending on hardware configuration.

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MICRO BITS

Douglas Barney

Kingdom clone

Compaq on a tightrope. The folks at Compaq are an agile lot. When personal computer standards bearer IBM introduced a new bus, Compaq laughed but offered no technical response. And sales climbed.

Then, when this IBM Micro Channel bus got a head of steam, Compaq gingerly rallied its rivals to announce EISA, a functional equivalent that will ship some 2½ years after IBM's original product. Despite the bizarre and belated positioning, sales climbed.

Now, to confuse customers that had finally felt comfortable, Compaq's strategy has become as murky as the fluid that oozed out of the *Exxon Valdez*, and just as slippery.

The latest is a licensing deal

Continued on page 36

Inside

- GTE Electrical lights up energy-saving users. Page 33.
- Better baseball bats with the help of PCs. Page 33.
- Grid Systems offers extra-light laptop. Page 37.

Designs for the third dimension

ON SITE

BY JAMES DALY
CW STAFF

LIVERMORE, Calif. — Time was, the only thing a pair of 3-D glasses was good for was making it seem as if the Creature from the Black Lagoon were right beside you in the movie theater.

But Peter Luft and Gary Bradley are working to change that. At the Lawrence Livermore National Laboratory here, the two designers have developed a way to use a pair of cardboard 3-D glasses to transform intricate flat-screen engineering drawings into wire-frame models that appear as if you could reach through the terminal's screen and grab them.

Workstation users accustomed to spending thousands of dollars for realistic on-screen three-dimensional representations are also going to find one aspect of the methodology particularly attractive: It requires no new hardware or software. The only cost is about 39 cents, for the glasses.

"The great thing about 3-D is that it's unambiguous," Luft said. "And if you don't have a good idea of what you're designing or how it will eventually look, you're heading for big trouble."

Traditionally, designers have needed to draw a front, top and side view of an object. Shading is added to heighten the sense of proportion a two-dimensional drawing often lacks. But even with that addition, the viewer still needs to spice the image with a little imagination to get an idea of how it would actually appear.

Luft and Bradley's method is an attempt to teach an old dog some new tricks. The procedure begins with a view of the drawing in red. The image is then rotated two degrees about its vertical axis and drawn in cyan. When viewed through the glasses — which have one red lens and one cyan lens — each eye sees a slightly different image, and the 3-D effect snaps into place.

Luft stumbled upon the idea last August while puzzling over the design of an object. An ex-photography student and a long-time admirer of the lab's computer-aided design system, Luft saw a pair of 3-D glasses pinned to the wall of a co-worker's cubi-

Continued on page 36

Savvy users can save on hot service market

BY JAMES DALY
CW STAFF

The dramatic increase in workstation price and performance competition has translated into a bargain-hunting bonanza for users shopping for service and warranty policies to back up those machines, according to a report recently issued by The Ledgeway Group, Inc. research firm.

As the workstation field becomes more crowded and competitive, vendors have turned the service and warranty market into their next selling point, often trimming prices and packing features into their after-sale service packages in an attempt to woo customers, the Lexington, Mass.-based firm said.

The days of charging a fixed maintenance fee are gone, but vendors have sweetened the pot by bundling support into initial sale packages, often throwing in training and implementation assistance services at no additional charge.

Consequently, vendors have also sought to broaden their services distribution support by formulating incentive programs to encourage resale or alternate channel support.

The result is not only a bargain for first-time users but also a foot in the door for vendors looking to enjoy the financial windfall when future support is needed.

"Cost of ownership represents an area of increasing importance," the report said.

The report also found, however, that shorter warranty and services policies prevail. Despite a movement to one-year warranties by vendors such as Digital Equipment Corp. and IBM, the report concluded that most other warranties tend to be shorter, usually only about 90 days.

Service squeeze

Prices for workstation service and support are being forged by pressures from above and below

SOURCE: THE LEDGEWAY GROUP, INC. CW CHART: FRANK C. O'CONNELL

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Micro Focus COBOL/2 Workbench Awarded 1989 Professional Solutions Award . . . . . **PC Tech Journal, 2/89**

"The COBOL/2 Workbench, available from Palo Alto based Micro Focus, Inc. is by far the most powerful and complete PC-based COBOL development and maintenance toolset. This package is the Cadillac of PC COBOL toolsets." . . . . . **System Builder Magazine, 1/89**

Micro Focus "ANIMATOR is a sparkling example of the reason why the PC-based COBOL workstation represents a quantum leap in programmer productivity." . . . . . **Database Programming & Design, 10/88**

"Could COBOL be the key to the success of OS/2?" . . **BYTEweek , 6/19/89**

Micro Focus Awarded Four Out of Four Ribbons for "Overall Value" in Readers' Choice Awards . . . . . **InformationWEEK, 4/24/89**

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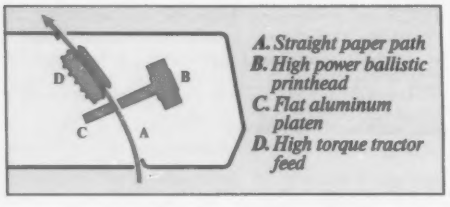

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Fed red tape blunts PC cutting edge

BY DOUGLAS BARNEY
CW STAFF

WASHINGTON, D.C. — While users praise progress, not all is rosy in the land of government personal computers.

The federal government has been engaged in a massive deployment of PCs aimed at increasing worker efficiency and allowing the government to provide adequate services regardless of budgetary conditions.

Despite the large buys, critics charge that the often tedious procurement process can result in the acquisition of technology that is behind the times, since the original specification may not take into account more recent technical advances.

Add to that lower pay scales for government IS workers, and you have equipment that may be out of date and not fully optimized or supported.

"The government is not on the leading edge of technology because the procurement can take up to two years," said Jerry Schneider, chairman of the Fed Micro Program Committee, a group that runs an annual conference and exposition for government information systems professionals.

Ironically, buying individual PCs is apparently not a problem. "It is almost getting as easy as buying a pencil," Schneider said.

In addition, government pay scales lag behind those in private industry. While agencies can easily acquire PCs, they often have difficulty attracting enough talent to take advantage of the equipment. In particular, skilled college graduates with a focus on computer science are flocking to business and steering clear of government work.

"We don't have the applications talent because of pay scales. For instance, we have no programmers on our staff," said Dan Yurman, information management specialist for the Environmental Protection Agency's Hazardous Waste Program.

Even if government agencies buy leading edge technology, it takes skilled people to implement and support complex new systems.

Only so far

"Without money, we will hit a wall. We won't be able to take advantage of all this stuff like 80386s, cooperative processing, and OS/2," Yurman said. Yurman's group has acquired more than 1,000 PCs and currently has one for every two professional workers. One Pentagon IS professional agreed. "I do not get the people straight out of school who are aware of the state of the art," said Craig Hirai, an official of the Pentagon's Macintosh user group.

Ironically, it often costs more to contract government work out to independents, some users said. Other problems with contractors are lack of control, instability of the contractor and an inability of the agency to support the finished system. These issues have led many government areas to use packaged software, even if it is not as effective as a custom solution, the users said.

Some procurement contracts, however, are clearly on the leading edge. The Social Security Administration will soon award a contract for 8,000 PCs based on the Intel Corp. 80386 processor. The SSA is specifying a high-end PC so that it can keep up with software advances that emerge during the next five years, officials said.

New bat design jogs out from university dugout

Researchers use PCs to wield radical new stick

BY RICHARD PASTORE
CW STAFF

STARKVILLE, Miss. — A baseball bat in the shape of a tennis racket would probably cause some ball players to scoff — that is, until they found that it might make them better hitters.

This departure in bat design, though somewhat extreme, outperforms the traditional bat, according to researchers at Mississippi State University, who are using computers to find ways to make better bats. More subtle — and practical — design improvements are resulting from a personal computer-driven study that is under way at the university's aerospace engineering department.

FRANK C. O'CONNELL

"We are interested in what happens to the bat during impact, how strong does a bat need to be to withstand the impact and what you can do in terms of structure to improve the performance of the bat," explained Keith Koenig, associate professor of aerospace engineering.

A Dell Computer Corp. PCs Limited 286 equipped with three Metrobyte Corp. data acquisition boards controls the nearly simultaneous actions of a pitching cannon, hydraulic batting machine, cameras and IBM Super Video Graphics Array monitors.

Three Intel Corp. 80386-based IBM compatibles with Intel 80387 math coprocessors apply 6.5M bytes of memory to record and analyze bat variables such as stress, deflection and deformation. The researchers then use homegrown software and a commercial finite element analysis program to predict the flight path of the ball after impact and how the size, shape, weight and materials of the bat will affect performance.

These studies have yielded some surprising information. For instance, lighter bats make for better hitters. Besides the fact that light bats are easier to control, the lighter weight is directly related to higher ball velocity in certain situations, Koenig said.

Materials make a big difference in performance. Koenig originally thought "it doesn't matter what you make the bat out of, as long as it's many times harder than the ball," he said. "But that is not what we found; the strength characteristics of different materials does influence the performance. If you make the bat out of a material that deforms and rebounds on impact like a trampoline, the ball will gain higher velocity."

The computers have shown that the most effective distribution of weight in the bat — the proportion of weight in the barrel vs. that in the handle — is not as logic and tradition would have it. Koenig would not elaborate, since much of this data is proprietary to the program's backers: bat makers Worth, Inc., which has funded the study since 1983, Easton Aluminum, Inc. and Spaulding Sports Worldwide.

Like a double to left field in Fenway Park, some of the project's bat designs are off the wall. "There are some rather strange-looking bats in the works," such as one reminiscent of a tennis racket, Koenig said. "They would work, but sanctioning organizations like the NCAA or American Softball Association have certain restrictions on bat size, weight and length, so whether you'll ever see one out on the diamond is unclear."

Many bats on the market today, primarily Worth products, are designed with graphite-based composite materials recommended by the research project. At first, these composites were not legal, but two years ago the sanctioning bodies agreed to allow them. With a portable 386-based PC on the way, Koenig said he hopes to conduct experiments and bat analyses in real hitting situations.

GTE's software idea comes to light

Energy-paring package allows customers to answer their own 'watt-ifs'

BY RICHARD PASTORE
CW STAFF

DANVERS, Mass. — GTE Electrical Products has announced a five-part software package designed to shed light on users' energy-saving illumination questions.

Sylvia, shorthand for Sylvania Information Analysis, will allow current and potential Sylvania lamp customers to "sit down in front of the screen and play 'what-if' games," said Arnold Tucker, the company's manager of technical programs.

Users with IBM Personal Computers or compatibles can use the program to compare total costs of installing and operating different lighting systems — both Sylvania brands and competitors'.

Wise investment

Users can also calculate the cost to replace an old system with an energy-saving Sylvania system and determine the resulting return on investment. The software's built-in database contains specifications and prices for 400 lamp types.

Sylvia is sophisticated enough to take into account that Sylvania products give off less heat than standard lighting, which consequently reduces air-conditioning costs, the company said. "In the case of Miami, [the savings] could be substantial because you're probably cooling 11 or 12 months out of the year," Tucker said.

GTE's Tucker *hopes package will save clients cash*

For customers situated in northern climates, Sylvia also figures in the cost for heating needed to make up for that lost by replacement of the hotter standard lighting.

Sylvia is targeted toward lighting designers, architects and electrical distributors. Users do not have to be computer sophisticates to operate the software, Tucker noted.

Money well spent

"We've spent an awful lot of time making this program user-friendly," Tucker said. The user only needs to supply figures for his current lighting installation's operating costs. GTE designed the program so that the results of the analyses "look like a smooth transition from the input to an answer that you can readily utilize," Tucker said.

GTE is betting that Sylvia, its first foray into consumer software, will lead to an increased use of Sylvania lighting systems. However, Tucker emphasized not every analysis will yield favorable results for Sylvania. For instance, "to replace old lighting with new lighting might not be recommended in certain situations," he said.

Sylvia, which began shipping last week, runs on IBM PCs and compatibles and retails for $24.95.

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A White Paper by DCA

The Merging of PC LANs and 3270 Networks

A Prospe

MANAGEMENT INFORMATION SYSTEMS WEE

LAN Acquisitions Shift To Corporate MIS Level

By GEORGE BRIGGS

BOSTON—Two new trends emerging in the personal-computer local area network marketplace — a shift in who is buying the equipment and a subsequent refocusing of vendors' selling strategy — together will change the nature of the LAN market permanently.

PC WEEK

CONNECTIVITY

MICRO-MINI-MA

IRMALAN Products Establish DCA as Leader in LAN Mainframe Gateways

By David Strom

Digital Communications Associates' (DCA's) new IrmaLAN 3725 Gateway, IrmaLAN SNA Workstation version 2 and APA Workstation version 2 products are a big step for the Alpharetta, Ga., communications firm. With these new products, DCA has the strongest local area network (LAN) mainframe-gateway product line of any vendor, including IBM.

The new IRMA

PC MAGAZINE • OCTOBER 11, 198

MANAGEMENT INFORMATION SYSTEMS WEE

DCA Fulfills 10NET's Charter With Several LAN Products

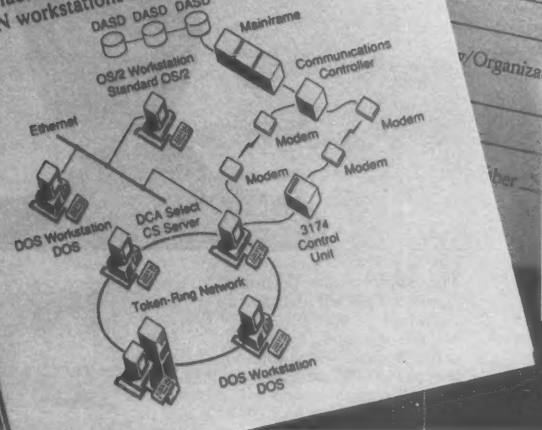
By TERI ROBINSON

NEW YORK—10NET Communications, after be-

10NET Plus: Everything PC LA Do Plus E-mail and Group Sch

PC HANDS ON

The following graphic depicts the many options available to the user with DCA Select CS for LAN workstations and mainframe connectivity.



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Customer Representative
Marketing Information Group

DCA

1000 Alderman Drive
Alpharetta, GA 30201-4199
1-800-241-4762, Ext. 51
In Georgia 404-442-4500, Ext. 51

DCA LAN Communications

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Designs

CONTINUED FROM PAGE 31

cle one afternoon and the proverbial lightbulb went on above his head. Since then, the glasses have become an important tool in Luft's workday, during which misperceptions can turn into costly and potentially job-threatening failures. They can also be big money-savers, allowing a user to come up to speed quickly on a drawing that has just been handed off. Luft cited the case of one Oregon company that has reduced a model maker's four-hour orientation time to five minutes.

Although the 3-D effect may be unnecessary in creating objects that are flat and simple, it can be invaluable when creating a widget that is a little more unusual in design or placement.

Critical pieces

Luft's current project involves designing a device that measures the heat of a laser. Although it is only a small cog in what will eventually be a two-story laser system, each piece is critical. After he dons the 3-D glasses, the on-screen image, which had seemed a confusing knot of intersecting lines and circles, suddenly appears as a 3-D image. "The stereo image doesn't require any interpretation," he said. "What you see is what you get."

Luft and Bradley have put together a formal research paper that they are making available through the nuclear weapons lab's affairs office and that they hope to present at the Annual International Computervision User Conference in Boston in September.

The wonderful thing about 3-D *glasses and computers is that the glasses cost just about 39 cents*

Barney

CONTINUED FROM PAGE 31

Compaq reached with IBM, allowing the Houston clone kings to produce Micro Channel machines.

Immediately after the announcement, words started to flow out of both sides of Compaq officials' mouths. First, officials said the broad patent agreement had nothing to do with plans for the Micro Channel. They also said that if customers demand the Micro Channel, they'd be "foolish or crazy" not to have one for sale.

NO MATTER what Compaq says or does, it will in some way be wrong.

So which is it? The point of decision will have to come this year, when EISA should ship and undecided customers make some decisions.

No matter what Compaq says or does, it will in some way be wrong and will have to do some pretty fancy, politician-like footwork to recover. Say it produces a Micro Channel machine, which it needs for Fortune 1,000 accounts that are already standardized on the Micro Channel but still want a compatible alternative. Customers will wonder what took so long and why the firm pooh-poohed any customer moves to this platform. The company is going to look awfully hypocritical.

If the firm presses on with EISA and it fails, customers are going to wonder why they were led astray by an insignificant and misguided bus architecture. Compaq is going to look like it can't read the market. The only way Compaq can avoid this sorry state is if EISA succeeds. But then why in creation would Compaq license the Micro Channel, and why did it take so long to decide that a better bus was appropriate? Customers are sure to ask.

In the long run, it doesn't matter for Compaq. Any way you cut it, sales will probably climb. That is because people love machines that are optimized in every way for speed, without sacrificing compatibility. Regardless of bus architectures, Compaq will continue to build these types of systems.

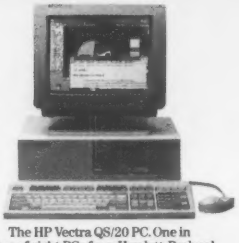
Still, there is risk. We all know what happens to those that fall off the tightrope. You hit the ground, or you wind up on the wire, hanging awkwardly. Either way is painful, and in the worst case, awfully messy.

Barney is a *Computerworld* senior editor, PCs and workstations.

He also doesn't realize Hewlett-Packard makes PCs.

That's unfortunate. Because Hewlett-Packard has a line of eight high-performance personal computers. PCs which range from desktop and floor-mount Intel386™ based powerhouses to entry-level 8086-compatibles. PCs which offer you a better way of doing business.

Hewlett-Packard personal computers give you plenty of opportunity for expansion. As



The HP Vectra QS/20 PC. One in a line of eight PCs from Hewlett-Packard.

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NEW PRODUCTS

Systems

A 9½-pound battery-powered laptop with a 20M byte hard drive has been announced by Grid Systems Corp.

The Gridlite XL reportedly has an optional 20M-byte, 2½-in. hard drive from Prairietek Corp. and incorporates a high-contrast, low-power black-and-white display. The reflective LCD display with a 12-to-1 contrast ratio is said to produce text and graphics that are easily read in different lighting conditions.

According to the company, standard features include 128K bytes of random-access memory; a 3½-in., 1.44M-byte floppy drive; and parallel, serial and red-green-blue ports.

The standard configuration is priced at $1,950.

Grid Systems
47211 Lakeview Blvd.
Fremont, Calif. 94537
415-656-4700

Data storage

A 940M-byte optical subsystem for microcomputers has been announced by Micro Design International, Inc. (MDI).

According to the company, the Laserbank 940 is a write-once read-many disk drive system that appears to most operating systems to be a standard hard drive. The drive reportedly has an access time of 90 msec and includes an optical disk drive, a small computer systems interface for the MS-DOS or Xenix operating system, cabling, software drivers and a user's manual.

MDI's Optical Peripheral Access Link library of applications that allow programmers to directly access the optical disk from within an application sells for $400. The optical subsystem price starts at $4,095.

MDI
6985 University Blvd.
Winter Park, Fla. 32792
407-677-8333

well as plenty of options. At the high end, you can get up to 8 accessory slots, 620 Mbytes of hard disk storage, and 16 Mbytes of RAM. And on all models, you get a choice of video solutions and the flexibility of using either 5.25" or 3.5" disks.

Beyond this, an investment in Hewlett-Packard PCs allows you to choose confidently from thousands of software applications and peripherals. HP's strict adherence to industry standards insures compatibility. Now, and into the future.

But the most important feature, the one you won't get with any other personal computer, is Hewlett-Packard reliability. For 50 years, HP has promised, and delivered, exceptional quality in everything from calculators to HP LaserJet printers.

Finally, every PC made by Hewlett-Packard is backed by an extensive network of trained, authorized dealers. For more information and the name of your nearest dealer, call 1-800-752-0900. You'll soon realize what an HP personal computer can do for you.

There is a better way.

HEWLETT PACKARD

Software applications packages

Imagraph Corp. has announced a viewport accelerator for Autodesk, Inc.'s Autocad Release 10.

According to the company, Imaview is an extension to Imagraph's zoom/pan/redraw display list driver for Autocad called Imazoom. Imaview reportedly generates multiple viewports from a single view up to 50 times faster. In addition to its standard functions, the accelerator is said to allow drawings to be edited, zoomed and panned to any size in any window.

Available immediately, Imazoom sells for $195.

Imagraph
11 Elizabeth Dr.
Chelmsford, Mass. 01824
508-256-4624

A subscription to a personal computer database of article summaries from 13 business publications is available from Insight Datasystems, Inc.

According to the company, the first issue of the Business Currents database subscription includes software, documentation and a database of approximately 12,000 article summaries covering the most recent year. Monthly update issues on floppy disks contain approximately 1,000 new summaries, and update software maintains availability of the last 12 months of coverage.

The product runs on IBM Personal Computer-compatibles with MS-DOS 3.1 or higher, 4.2M bytes of available hard-disk space and 390K bytes of available MS-DOS memory.

Prices are $229 for the first issue and $22 for each monthly update. An introductory one-year subscription costs $389.

Insight Datasystems
723 Washington St.
Newton, Mass. 02160
617-965-6888

Utilities

A programmer's tool that lets users print over a dozen bar-code types from within their own programs has been made available from Computer Connection.

Called Code Master Release II, the tool reportedly offers object and library files to print bar codes, demonstration programs for each language supported and optional source code. Source code allows the user to add print drivers and change the program for special needs.

Written in C language for compatibility with PC-DOS/MS-DOS 2.0 or higher, Unix or OS/2 operating systems, the software costs $289 without source code, and $389 with code.

Computer Connection
22½ S. Barstow St.
Eau Claire, Wis. 54701
715-833-2331

Attachmate Corp. has released an upgrade of its 3270 personal computer mainframe emulation software.

According to the company, Extra 1.4 requires up to 50% less memory to run. It speeds file-transfer capabilities through the use of larger packet sizes and the addition of concurrent file transfer with DOS sessions. The product lists at $425, with upgrades to previous versions available for $75 each.

Continued on page 38

Continued from page 38

Attachmate
13231 S. E. 36th St.
Bellevue, Wash. 98006
206-644-4010

Macintosh products

Visual Business Systems, Inc. has announced a graphics business software package for the Apple Computer, Inc. Macintosh II computer.

Called Visual Business No. 5, the software reportedly provides shading in single, multicolored, angled or spotlighted backgrounds to dramatize text, bar, column, scattergram or pie charts. Several different fonts are also included, the company said. A proprietary software rasterizer is provided free with the introductory package. The software is priced at $395.

Visual Business Systems
700 Lake St.
Ramsey, N.J. 07446
201-327-2526

Enabling Technologies, Inc. has announced a three-dimensional desktop graphics software tool capable of operating in either an Apple Computer, Inc. Macintosh or IBM Personal Computer environment.

Called Zing, the product reportedly allows publishers, presenters and graphics artists to create, shape, shade, color and export three-dimensional objects. The package is compatible with Aldus Corp.'s Pagemaker, Microsoft Corp.'s Word, Adobe Systems, Inc.'s Illustrator and several other software applications. It is priced at $199.95 and will be distributed by Mindscape, Inc.

Mindscape
3444 Dundee Road
Northbrook, Ill. 60062
312-480-7667

Development tools

Hewlett-Packard Co. has announced HP ME10D, a high-end software package for mechanical design and drafting that runs on IBM and Compaq Computer Corp. personal computers as well as the HP Vectra PC.

This is the first offering of HP computer-aided design software on competitive hardware platforms, according to the company. The package is reported to be a full-function DOS version of HP's AT&T Unix System V-based software for HP 9000 industrial workstations. The HP ME10D package costs $6,495.

HP
3000 Hanover St.
Palo Alto, Calif. 94304
800-752-0900

MCAE Technologies, Inc. has announced its Conceptual Engineering Design and Reporting (CEDAR) software for IBM Personal Computers running Microsoft Corp.'s Windows.

The software incorporates techniques that allow data to be imparted in a single pass to geometries for creating two-dimensional concept models, the vendor said. The geometries in the models can reportedly be constrained by dimensions, mass properties and engineering calculations. The program is available for a limited time at an introductory price of $495, according to the vendor.

MCAE Technologies
3473 Nova Scotia Ave.
San Jose, Calif. 95124
408-371-6095

Peripherals

Radio Shack, a division of Tandy Corp., has introduced a wide-carriage dot matrix printer with 24-wire graphics and print speeds of up to 270 characters per second.

Called the Tandy DMP 2102, it is said to emulate both the Tandy and IBM Proprinter XL24 printers, providing the user with resolution graphics of 360 by 180 dot/in. The printer also includes an IBM Alternate Graphics Mode for greater graphics-based software compatibility and can store up to 16,000 characters in memory, with an additional 32,000-character memory available for downloadable fonts.

The price is $999. An optional one-bin, cut-sheet feeder, the CSF 300, is available for $299.95.

Radio Shack
1700 One Tandy Center
Fort Worth, Texas 76102
817-878-4969

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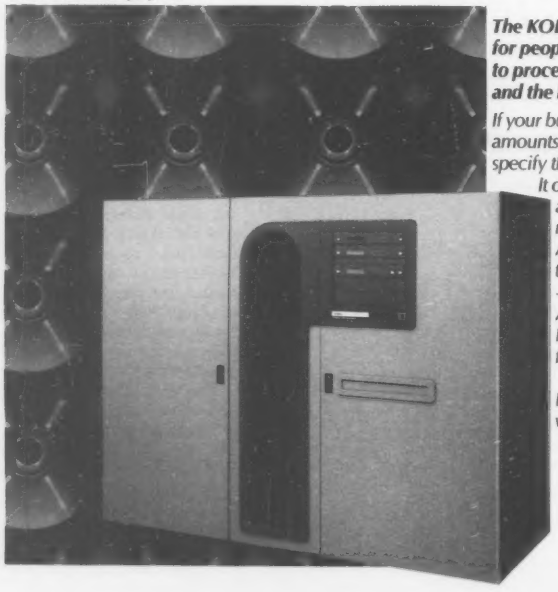

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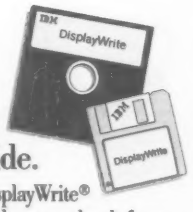

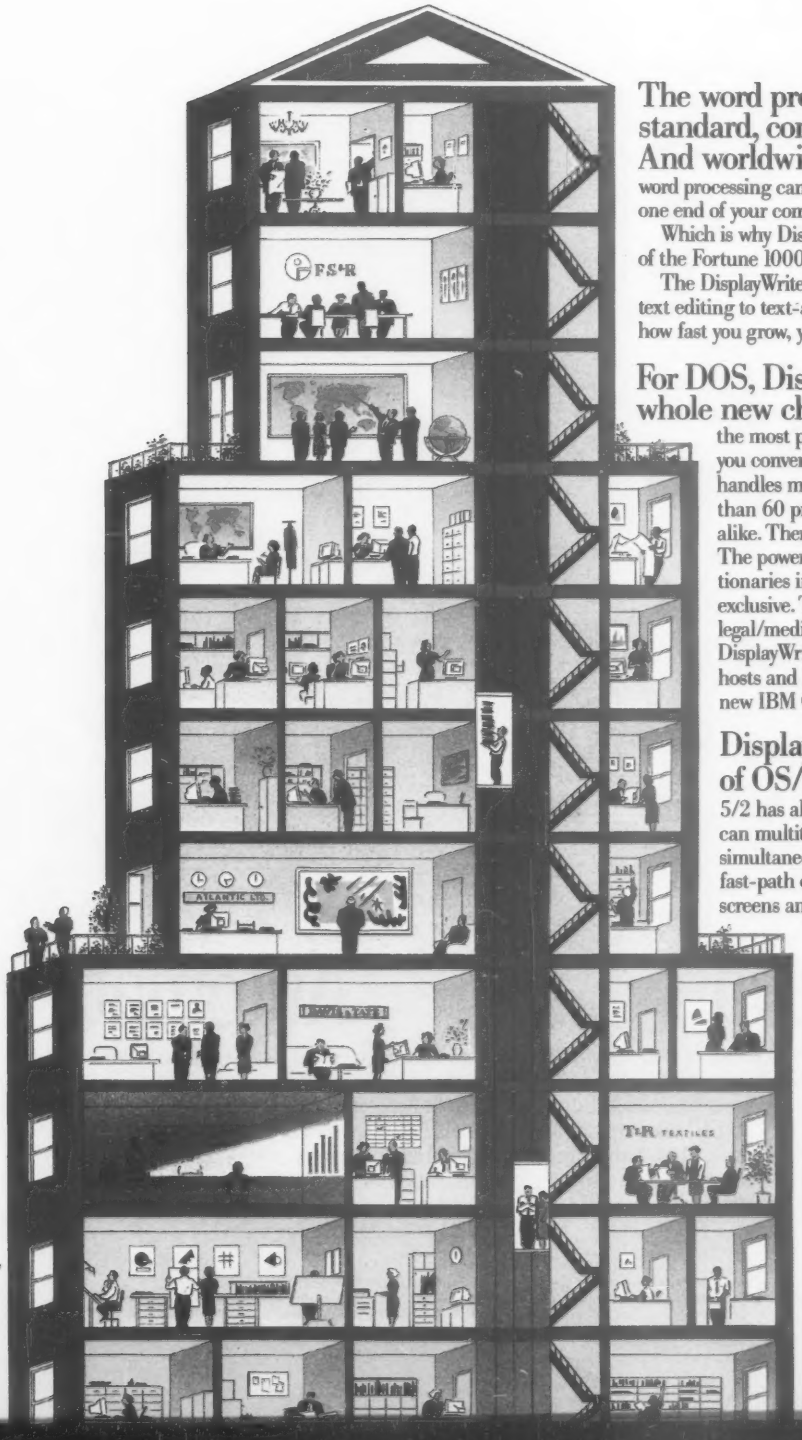

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Now there are two ways to drive your network on a 386.

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Novell went to a lot of effort to get NetWare™ to perform on a 386™ Microprocessor. But you'd have to go to considerably more effort to get it to perform like VINES®.

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Which is nothing new to the VINES users who've been enjoying proven 386 performance for over a year. But to those who are still waiting for NetWare to catch up, remember, it's never too late to shift gears.

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DATA STREAM

Patricia Keefe

3+Open: Take it or leave it

Will the real 3+Open please stand up? 3+Open, 3Com's OS/2 LAN Manager-based generation of its network operating system, seems to be acquiring a love-it or get-it-the-heck-away-from-me reputation.

Reports have been filtering through the grapevine that 3+Open is difficult to install and cumbersome. Some complaints, such as lack of robustness and speed, will shortly be remedied with the next release of the product. But at least one network analyst, also a disgusted user, terms 3+Open "abysmal." The disappointed analyst sums up his feelings as follows: "They are a hardware and board company, and they know nothing about network software. They can't even be classed with Novell." Ouch.

The new math. At their recent annual meeting with financial analysts, 3Com executives detailed an evolved version of the firm's target customer: a large organization with multiple locations served by multiple vendors. The bummer is the long sales cycle, which of course will require direct sales intervention. No big surprises here.

But the good news, according to 3Com's Robert Finocchio, vice-president and general manager of the marketing and services division, is that 3Com "is able to beat IBM on its own turf — in IBM accounts." He also notes that most large 3Com accounts place about $200,000 in annual orders, which is far short of the vendor's stated goal of establishing

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- Zenith Electronics offers fiber-optic LANs. Page 42.
- Northern Telecom adds SNA to DPN-100. Page 42.
- New England Telephone announces fractional T1 service. Page 43.

Prescribing real-time remedies

BY RICHARD PASTORE
CW STAFF

Malady: Paperwork fever caused by third-party claims processing.
Remedy: Pharmacy network.
Side effects: Reduced losses from rejected claims, added customer value, expanded business volume.
Dosage: Link all stores by 1991.

This prescription is not new; Walgreen Co. became the first pharmacy to try it by installing a real-time pharmacy network in 1981. But two factors have added urgency to an industrywide call for a cure. The first is the growth in third-party prescription coverage from health maintenance organizations (HMO) and company-administered plans. The second is a federal act mandating Medicare prescription coverage for outpatients beginning in 1991, which on its own is expected to deluge pharmacists with 700 million new third-party transactions in the first year.

Third-party transactions are expected to make up 70% of pharmacists' business by the end of the century. They now account for 35%.

"Third-party prescription processing is so complicated — there are so many rules and exceptions with payment eligibility — that the chains can't depend on the pharmacist to keep everything up to date," said Bill Lockwood, publisher of *Computertalk for the Pharmacist*, an industry trade magazine. However, by tying their in-store personal computers to hosts at the chain's headquarters, the pharmacies are beginning to "take control of third-party [billing] from the pharmacy level and put it in headquarters," where staff maintains the system, Lockwood said.

Networks can eliminate druggists' maintenance burden and thus boost productivity, making it possible for pharmacies to increase their volume of lucrative third-party business — a built-in way to pay for technology investment.

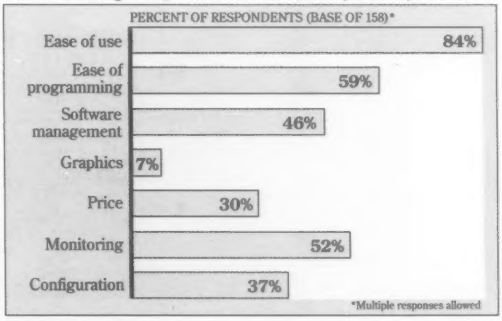
Virtually all of the major phar-

Continued on page 43

Data View

Critical concerns

Companies whose primary DP supplier is IBM were asked which network management features are critical; ease of use was first choice



SOURCE: INTERNATIONAL DATA CORP.
CW CHART: DOREEN DAHLE

Competitive cure

Revco, an 1,880-store pharmacy, is about to join the elite corps of drugstore chains linked by real-time networks.

"We think that this system will really help the future of the pharmacy," said William Seltzer, senior vice-president of distribution and systems. "We're looking for a competitive edge."

Specifically, Seltzer is looking for a 50% boost in productivity over Revco's old system, which consisted of stand-alone NEC Corp. personal computers and a black-box system for third-party prescription coverage verification in which a customer's third-party plan identification number was entered and transmitted to an independent third-party clearinghouse along publicly switched lines.

The new network, which is expected to be fully rolled out in 18 months, will link in-store IBM Personal Computer clones over an X.25 leased-line, packet-switched network. The PCs will be linked to a host Tandem VLX at Revco headquarters in Twinsburg, Ohio. The application software was developed in-house at Revco.

With the network, Revco's third-party verifications average 3.6 seconds, Seltzer said. Under the black-box system, verification required 45 to 60 seconds. Cost savings from reduced paperwork is an added bonus. "Everyone doing a lot of third-party work today is plagued with rejected claims as well as slow receivables because of the time needed to correct the rejects," Seltzer said. "Rejects" include third-party claims that are ineligible for payment or are paid only in part. "Since the first store went on-line in May, there have been no rejects," he said.

Revco estimates its return on investment from the system will exceed 80%. "The payback is fairly early," Seltzer added, "less than three years."

RICHARD PASTORE

Long-distance rates cut; telecom prices drop by 1%

BY ELISABETH HORWITT
CW STAFF

Telecommunications prices fell a full 1% between the first and second quarters of this year, the biggest decrease since the first quarter of 1987, according to McGraw-Hill Information Services Co. The biggest factor behind this drop, the New York research firm said, is the recent spate of rate cuts by long-distance carriers.

In an increasingly competitive interexchange market, AT&T, MCI Communications Corp. and U.S. Sprint Communications Co. have used a combination of special long-term discounts and tariff cuts to attract business away from one another and from "second-tier" carriers such as Cable & Wireless Communications, Inc., which have posed an increasingly serious threat to the "big three," industry sources said.

AT&T, for example, has announced several new customers for its Tariff 12 discount service, including The Prudential Insurance Co. of America, First Chicago Corp. and Combustion Engineering, Inc., and is rumored to have approximately 30 new signups in the works. In addition, the carrier has announced a series of major rate cuts to its Accunet family of high-speed digital services.

The most recent of these was AT&T's "Digital All-Stars" program, introduced earlier this month. The program, which is scheduled to take effect Aug. 25, extends AT&T's Multi-Service Volume Pricing Plan to offer discounts of up to 50%.

The pricing plan allows customers to aggregate different types of Accunet services to take advantage of bulk discounts. This includes Accunet T45 and T1.5 services and Dataphone Digital Service (DDS) and will be expanded to include International Accunet Digital Services as well, AT&T said.

AT&T also announced its Digital Partnership Plans, which offer discounts of up to 24% for customers who sign up for between one and five years of Accunet 1.5 or T45 and discounts of up to 12% for those who do the same for DDS.

While AT&T's price-cutting maneuvers have occasionally forced MCI and U.S. Sprint to play catch-up when it comes to tariff rate levels, they have apparently not prevented AT&T from losing substantial market share to its primary competitors, according to a recent Federal Communications Commission report.

While the total amount of interstate switched traffic handled by all long-distance carriers has grown an average of 13% a year, AT&T's share of that traffic has declined from 80% in late 1984 to 69% during the first quarter of 1989, according to the FCC report, which was released last spring.

Northern smooths SNA packet-switching

BY ELISABETH HORWITT
CW STAFF

NASHVILLE — Northern Telecom, Inc. has enhanced its DPN-100 family of packet switches to handle IBM Systems Network Architecture (SNA) traffic without the need for special software or packet assembler/disassemblers (PADs), the vendor said.

Further enhancements scheduled for later this year will allow DPN-100s to exchange data transmissions with Integrated Services Digital Network (ISDN) systems, Northern added.

DPN-100 SNA/Synchronous Data Link Control Enhanced Transparent Service, enhancements to Northern's switches, transparently passes SNA transmissions across a CCITT X.25 packet-switched network, according to Northern's Eastern Region sales director Jeff Powers. This allows users to set up SNA-to-X.25 links without installing special X.25 software such as IBM's Network Packet Switched Interface (NPSI) or special equipment such as PADs, he added.

The enhanced switches can also pass network management data between network devices and IBM's host-based Netview, Powers said. The enhanced software is also said to support transparent X.25 links among multiple IBM hosts as well as peer-to-peer communications using IBM's PU2.1 protocol.

Connect the domains

Another new feature is the DPN-100 switches' ability to interconnect hosts or terminal devices between different SNA domains, Powers said.

In a traditional SNA network, a terminal can address a host in another SNA domain only through a host that acts as a gateway, using IBM's SNA Interconnect protocol. DPN-100s equipped with the new software enhancement can handle cross-domain traffic across X.25 links, allowing terminals to address any host that "is aware of the terminal through its [sysgen]," Powers said. This in turn eliminates the software costs and host overhead involved in traditional domain-to-domain addressing.

The enhancement is also said to support CCITT X.32, which allows workstations to send X.25 packet-switched data over a dial-up network, as opposed to the leased lines required by traditional X.25 networks, Powers said. This provides the error correction and other network management features associated with an X.25 network to sites that cannot cost-justify leased lines, he added.

In the fourth quarter, Northern Telecom plans to further enhance the DPN-100 with the ability to translate between X.25 and ISDN numbering schemes so that DPN-100 users can address computers and workstations on an ISDN network, Powers said. The same ability will be provided to users of public packet-switched network services that use the DPN line, he added.

Bellsouth Corp., whose ISDN tariff is awaiting regulatory approval, is currently testing X.25-to-ISDN connections using DPN switches, Powers said.

Zenith latest with fiber Ethernet

BY ELLIS BOOKER
CW STAFF

GLENVIEW, Ill. — Zenith Electronics Corp. became the latest vendor of fiber-optic-based local-area networks last month, adding a fiber-optic Ethernet option to its Z-LAN product line.

Fiber Ethernets account for less than 1% of all Ethernet installations, according to Lee Doyle, manager of LAN research at International Data Corp. in Framingham, Mass. However, the technology — offered by several vendors in addition to Zenith — makes sense for some applications. Security-minded military and government users turn to fiber because, unlike copper cable, it does not emit electromagnetic radiation and is very difficult to tap.

More typically, Doyle said, users select fiber-based LANs because they are impervious to magnetic or radio-frequency interference from nearby electrical sources. The factory floor, a notoriously noisy electrical environment, was an early fan of this medium.

Zenith's Fiberstar Z-LAN10F, which operates at 10M byte/sec. with 100% collision detection, uses the IEEE 802.3 Ethernet standard. Fiberstar cards have a fiber-optic transceiver and interface on the adapter card itself rather than as a separate, external component.

The Fiberstar Z-LAN10F is compatible with Zenith's Z-LAN10E, Z-LAN500 and Z-LAN4000 product lines.

The cards currently support IBM Personal Computer, XT, AT and Personal System/2 Model 30 and compatible computers.

Zenith is taking orders for evaluation units of Fiberstar LAN cards this month; a commercial product is slated to be ready within 90 days.

A single Fiberstar LAN card costs $895; the eight- and 14-port hub units are $4,175 and $5,975, respectively.

GOOD NEWS

The results are in, and not one, but four of the industry's leading publications name Multi-Tech as the modem of choice.

Magazine editors and corporate buyers alike put nearly every modem on the market under close, demanding scrutiny.

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Editors at PC MAGAZINE in a review of 87 modems chose Multi-Tech for their Editor's Choice. Corporate buyers surveyed by PC WEEK gave Multi-Tech their highest scores for quality, overall performance and organized documentation. INFOWORLD, in detailed line impairment testing, named Multi-Tech the unquestionable "top performer." And results of the DATA COMMUNICATIONS Datapro User Review prompted editors to comment, "It's no wonder that Multi-Tech's performance and market share continue to grow."

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Prescribing

CONTINUED FROM PAGE 41

macy chains are computerized today, but only a handful of the top chains are networked in any way. Most of these link in-store Intel Corp. 80286- or 80386-based PCs to hosts via public dial-up lines, over which they transfer data on a nightly batch schedule to a corporate host.

In such setups, the PCs download pricing and advertising information and drug industry updates and upload prescription sales records to the mainframe. Third-party verification is typically done by dial-up to clearinghouse agencies or plan administrators, a process that takes about a minute.

Real-time networks, as opposed to batch setups, are affordable by only the richest chains, and only a few have implemented them so far, according to Lockwood. These networks enable pharmacists to conduct on-line third-party verification in a time frame of just three to four seconds.

A real-time network allows the pharmacist to concentrate on his profession instead of housekeeping duties. He simply enters the patient's third-party plan number, and seconds later, his screen tells him if the patient is eligible, approves the transaction and indicates the level of reimbursement, according to William Seltzer, senior vice-president of distribution and systems at Revco D.S., Inc.

Rite Aid Corp., one of the nation's five largest chains in terms of sales, is pilot-testing a real-time dedicated network for third-party verification, said Senior Vice-President of MIS Joe Phillips.

The network software, Healthnet/2 from Shared Financial Systems, Inc., links in-store PCs to a fault-tolerant IBM System/88 at Rite Aid's headquarters. The System/88 holds a database containing protocols and requirements for third-party plans.

Automatic verification

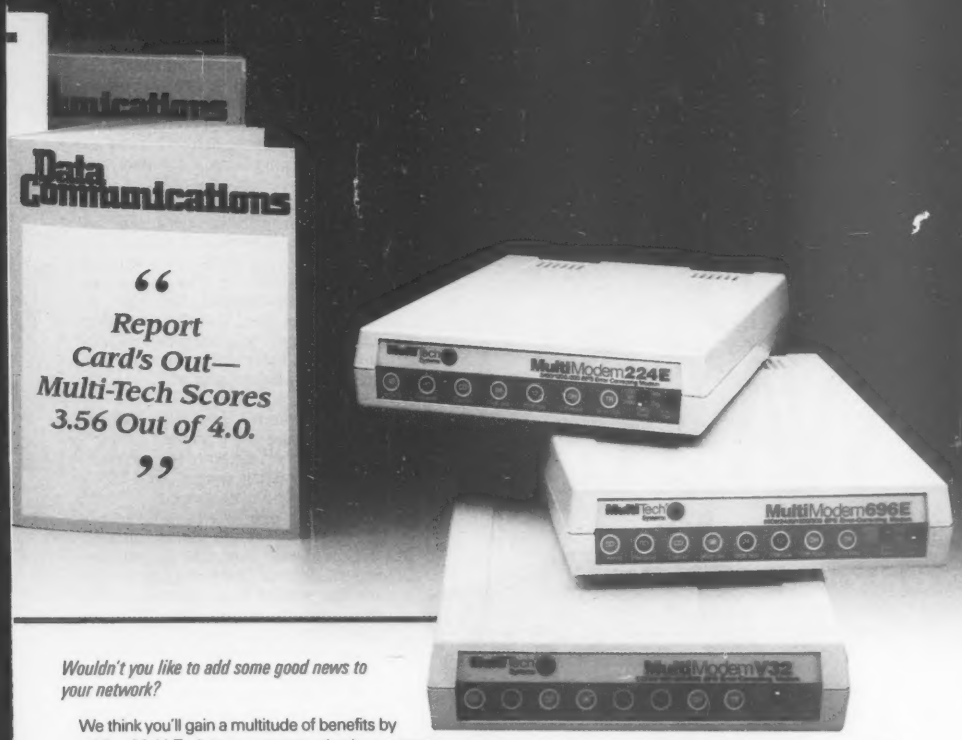
"When the pharmacist starts filling the prescription, the system automatically dials up Healthnet to verify the customer's eligibility to receive a particular drug," Phillips explained. "By the time the prescription is filled, we'll also know how much the [third-party plan] is going to pay for it."

Such a system substantially reduces the number of rejected claims. Seltzer estimated that under a manual system, Revco loses $7 million a year from third-party claims that are ineligible for payment or paid only in part.

Revco is now implementing a chain-wide homegrown real-time network (see story page 41).

At Walgreens, a pioneer in pharmacy networks, real-time is an institution — and a selling point as well. The company boasts in advertisements that customers on the road can fill their prescriptions at whatever Walgreens store they happen to be near, thanks to the stores' on-line systems.

MULTIPLIES



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Users of local fractional T1 take hope

BY ELISABETH HORWITT
CW STAFF

BOSTON — New England Telephone & Telegraph Co. (NET) recently became the first former Bell operating company to announce a fractional T1 service, a promising sign for users who want to take advantage of the offering's economies on the local loop as well as over long-distance lines, analysts said.

AT&T, MCI Communications Corp. and U.S. Sprint Communications Co. announced fractional T1 services earlier this year. However, until fractional T1 becomes widely available on the local loop, customers will be forced to use the more costly Dataphone Digital Service or full T1 links to access the long-distance carriers' fractional T1 offerings.

AT&T sees NET's announcement as "an encouraging sign," a company spokeswoman said. However, she added, the carrier remains only cautiously enthusiastic while it waits to hear NET's plans for conforming to AT&T's fractional T1 specifications. Such compliance is needed before the local and interexchange offerings can be interconnected, she explained.

NET's Superpath Fractional T1 Service is a digital point-to-point service that reportedly allows customers to purchase bundles of eight or 12 64K bit/sec. channels. Other services were also announced:

- Digipath Digital Services II, a private-line point-to-point or multipoint digital service that transmits synchronous data at speeds between 2.4K and 56K bit/sec.
- Secondary Channel Capability, a complement to the above offering, which is said to provide a separate facility for passing network management and diagnostic information between devices and network management systems that support the secondary channel.
- Data Over Voice-Path Service, a private-line service that reportedly allows users to send data and voice simultaneously over the same dial-up line at speeds up to 19.2K bit/sec. Users must purchase a Universal Data/Voice Multiplexer from the local-exchange carrier.

The services are slated for Oct. 1 availability.

Keefe

CONTINUED FROM PAGE 41

$1 million-a-year accounts. So it stands to reason that if 3Com is beating IBM in Blue accounts, it can't be for very big orders, or at least not very often.

Bridge over troubled waters. Beyond streamlining an admittedly unfocused — and I might add, not always well-integrated — product line and whipping the sales force into shape, 3Com needs to take a hard look at its Enterprise Systems Division. At the very least, the former Bridge Communications arm suffers a serious image problem. Industry sources and some users say Bridge is keeping a very low profile competitively. There have been a few complaints of diminished service; certainly there has been high turnover. There is even a report, denied by a 3Com spokesman, that Bridge has become the dumping ground for employees who fall from favor. The less truth there is to these reports, the more important it becomes to initiate some damage control.

Meanwhile, back at the ranch . . . All is not rosy in the Utah valley. The presumed departure of Craig Burton, Novell's executive vice-president and technical strategist, has left the door open for a power struggle or two, I'm told. There's talk of infighting between Executive Vice-President Jim Bills, who heads up services and sales, and Darrell Miller, executive vice-president of the Software Group. "It's paralyzed certain parts of the company," claimed a source close to the vendor.

Meanwhile, Chief Executive Officer and President Raymond Noorda, who recently turned 65, has no plans to step down. "You get the feeling he wants to turn Novell into a $1 billion company," says a Novell watcher. Along the way, Novell is apparently slimming down. It reportedly divested itself of the last vestiges of the former Santa Clara Systems and incurred an estimated 150 layoffs as a result of its Excelan merger.

Keefe is a *Computerworld* senior editor, networking.

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Hayes.

BIT BLAST

Metro-area net vendors air first users

Two teleport companies have announced the first users of their fiber-optic metropolitan-area networks. **Metropolitan Fiber Systems, Inc.** said **First National Bank of Maryland** has begun using its network. Also, **T. Rowe Price** has signed a contract for service. **Teleport Communications-Boston** said **Fidelity Investments** has initiated service on its Boston network. Fidelity subsidiary **Fidelity Communications, Inc.** and **Merrill Lynch Teleport Technologies, Inc.** jointly formed the teleport venture.

NEC America, Inc. has agreed to sell API/Netview, a communications software package from **Systems Strategies, Inc.**, to allow its Xenix-based NCMS/PC 386 workstations to send alerts to Netview without going through IBM's Netview/PC.

Softswitch, Inc. recently said it will incorporate into its Softswitch API the X.400 Gateway Applications Program Interface (API) published by the X.400 API Association. This reportedly will enable programmatic access to the X.400 services provided by Softswitch Central and X.400 Gateway products. Also, Softswitch mail interoperability testing is under way between its X.400 Gateway and **Western Union Corp.'s** X.400 service.

Omnitracs, said to be the first two-way satellite communications system for land-based fleets, recently went on-line in Europe, connecting British Telecom with Postal Telephone and Telegraph authorities in eight countries. Developed by **Qualcomm, Inc.**, Omnitracs' system uses Ku-band transponders on a satellite operated by Eutelsat and is being evaluated by several European firms.

Banyan Systems, Inc. and **AT&T** announced compatibility between Banyan's Virtual Networking Software, or Vines, network operating system and AT&T's Starlan 10 network hardware.

Boston Technology, Inc. (BTI), a developer of voice processing systems, has signed a pact with **Ameritech** to provide the first trial of voice message service from public telephones offered by a regional Bell holding company. BTI's Information Services Interface (ISI) will connect Ameritech's public telephones to BTI's Access voice processing system. The ISI device will be owned by Ameritech and reside in its central-office switching facility to monitor its public phone lines.

Telenet Communications Corp. in Reston, Va., recently announced that its **Telenet Japan, Inc.** subsidiary has obtained a license from Japan's Ministry of the Post and Telecommunications to provide international data communications service between Japan, the U.S. and other foreign locations. Telenet Japan was previously restricted to domestic service.

MANAGER'S JOURNAL

EXECUTIVE TRACK

Douglas B. Templeton has been named senior vice-president of corporate services at New York-based **Group Health, Inc.**

Templeton, 43, was formerly vice-president of corporate systems at Empire Blue Cross and Blue Shield. He graduated from Upsala College with a bachelor's degree in economics and business administration and has an MBA from Rutgers University in corporate management. Templeton and his family live in Montvale, N.J.

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Perpetual Savings Bank in Alexandria, Va., has appointed three vice-presidents in its corporate information services unit.

Ross E. Markley was promoted to senior vice-president for computer services. Formerly Perpetual's data center manager, he joined the bank in 1983 after operating a consulting agency.

Roger Feldman was named vice-president and manager of telecommunications. He was formerly manager of communications systems at Texas American Services, Inc. and also held senior telecommunications positions at Champlin Petroleum Co. and Exxon U.S.A.

M. Lee Dillon was named vice-president of office automation. She was previously senior vice-president and manager of corporate information systems at Sovran Financial Corp. Before joining Sovran, Dillon was an advisory systems engineer in IBM's Washington, D.C., office.

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Who's on the go?

Changing jobs? Promoting an assistant? Your peers want to know who is coming and going, and *Computerworld* wants to help by mentioning any IS job changes in Executive Track. When you have news about staff changes, be sure to drop a note and photo or have your public relations department write to Clinton Wilder, Senior Editor-Management, *Computerworld*, Box 9171, 375 Cochituate Road, Framingham, Mass. 01701-9171.

Breaking out of the mold

Cincinnati Milacron's plunge into CIM services takes firm outside its normal style

BY RICHARD PASTORE
CW STAFF

Mark Twain once said, "If our world comes to an end, I want to be in Cincinnati — because everything happens there 10 years later."

Twain was referring to Ohio's Queen City, but his comment can be applied to one of the city's largest corporations, Cincinnati Milacron, Inc. — historically conservative in its adoption of computer technology. But Milacron's new ambition to turn its internal MIS department into a profit center that offers computer services to outside clients should send Twain packing.

Last fall, the 105-year-old machine-tool manufacturer formed a new business unit called the Industrial Systems Group (ISG). This team of five separate divisions — MIS, electronic systems, industrial robots, advanced manufacturing systems and industrial software — will pool its individual product lines and services to offer them to Milacron customers attempting to achieve computer-integrated manufacturing (CIM). The operation is expected to be in full swing by 1992.

These are progressive plans from a company that has barely begun implementing its electronic mail system and has purchased half of its 800 personal computers within the last two years.

"We're a very conservative company," says MIS manager Mary Jo Burnes. "We like to use proven technology." Burnes, a 15-year veteran of the MIS group and its manager for 18 months, has had to contend with stringent cost controls during a recent Milacron business slump that has also plagued the rest of its industry.

RICK DIERINGER

Milacron's Mary Jo Burnes *faces the challenge of adapting the firm's IS department to outside service during lean times*

The ISG is a key part of Milacron's strategy to diversify and boost its presence in manufacturing markets with which it is already familiar. Specifically, the ISG will accelerate the company's penetration into the burgeoning CIM market, says ISG Group Vice-President David Entrekin.

"The development of a product is very intensive from a computer standpoint, and a lot of small and medium-size corporations don't have the necessary amount of computer horsepower to do it in a timely manner," Entrekin says. "We can take the big iron and re-

Continued on page 46

It's 'Not right now, thanks' for Tesoro

BY CLINTON WILDER
CW STAFF

In deciding whether to sell information services, what's good for the goose is not necessarily good for the gander. While firms such as Cincinnati Milacron have decided to take the plunge into the computer services marketplace, Tesoro Petroleum Corp. has elected to remain on the sidelines.

Within the past six months, San Antonio-based Tesoro, a billion-dollar oil company, strongly considered offering processing services to outside customers. As part of a larger corporate reorganization, it set up a new corporate structure, a separate subsidiary called Digicomp, to market those services. But preliminary market studies indicated the risk was greater than the reward, says Jack Watson, Tesoro's director of management systems.

"There did not appear to be a strong market for mainframe-based services," Watson says. "We're positioned organizationally to take advantage of any demand, but we just didn't see it."

The decision to consider selling IS services came about because Tesoro had excess capacity on its IBM 3083 JX mainframe, Watson says. The oil industry slump of the mid-1980s had forced a corporate downsizing, reducing demand for CPU power and cutting Tesoro's centralized IS staff from a peak of 100 employees to 45 today. Corporate management suggested looking at ways to offset its mainframe data center expenses.

More than you think

But the company realized that it takes much more than available CPU cycles to get into the IS services business. "There's a lot more expense and effort than many people realize in trying to turn an internal function around," Watson says. "We just felt it was too ambitious. We're not marketing people; we're in the business of managing an IS function for an oil company. There's an awful lot we don't know."

Digicomp is essentially a corporate shell today, ready to be used if Tesoro changes its mind about selling IS services. That day may come, Watson says, but not until Tesoro is convinced that the potential additional revenue is worth the attendant changes and risks.

"Our decision was to not aggressively pursue that business; we'd do it if someone knocked on our door," he says. "A lot of companies have done it — some have had success and some have not. I think you need to offer something unique that's really needed in the marketplace, not just general types of services."

Buddy, buddy

Cincinnati Milacron is striving to fashion a close partnership between its MIS department and its users. This relationship will serve as a blueprint for building MIS partnerships with users from outside companies — a new role for MIS as part of the Industrial Systems Group.

"Traditionally, corporate functions of all kinds, including MIS, are a necessary evil in the eyes of the divisional people; they *have* to deal with us," says MIS manager Mary Jo Burnes. "But we're trying to change that image so people *want* to deal with us and feel that we add a value to their operations."

The department has been operating under a chargeback system for three years. Burnes has defined for users the costs of their programmer support, system enhancements and processing time. "I'm showing the division managers where they're spending the money, and it brings them more of a sense of reality that they can relate to," Burnes says.

The MIS-end user partnership is critical at all levels, Burnes says. "We encourage our project leader/analysts particularly to get out to the divisions — don't have them come to you, don't talk to them on the phone, but actually go out and sit with them and experience their problems so you can come up with the best solutions," she says.

Another strategy is promoting an active user role in projects, with MIS acting as consultant rather than as sole planner, developer and implementer. "We want the user department to be the project leader, because it's really their project and it won't succeed unless they own it," Burnes says.

When a Milacron robotic equipment plant in Greenwood, S.C., requested a drafting system to replace its method of "working on the backs of envelopes," a user-led project team took charge. "My guy made sure that they didn't go off in a direction that couldn't be supported by the system and helped them understand how to use that application, but all the decisions were made by the division," Burnes says.

The plant installed Cadam, an IBM-marketed, two-dimensional drafting package on IBM RTs that were networked to the Cincinnati mainframes. "When it was all finished, they had a tremendous sense of ownership and pride in what they had done," Burnes says.

The MIS staffers learn about their company's business in part by participating in a companywide 15-week class called Product Awareness. The class spends a few hours once a week with a company division seeing the product lines, how they run their operation and the problems they contend with. "Everybody who's been through it has come back with a greater appreciation of the breadth of the company's product line and the kinds of services we offer," Burnes says.

RICHARD PASTORE

Milacron

FROM PAGE 45

sources we've got here and apply them against the customer's problem."

Cincinnati Milacron's MIS department plans to progress from running customer applications to setting up computer systems in customer shops to developing customer applications.

The biggest bats in Milacron's MIS lineup, in addition to its staff of 68, are an IBM 3084, 3083 and 4381, with a 3090 Model 200E on the way. The firm also has a Digital Equipment Corp. VAX 8700 and numerous smaller VAXs. In all, Milacron wields 150G bytes of storage.

The MIS forces are backed by a company with 6,000 employees worldwide. The Cincinnati complex is so large — 124 acres and 1.4 million sq. ft. of production space — that it boasts a fleet of golf carts for internal transportation, a dozen interdepartmental softball teams and an employee lodge.

Potential services that MIS will offer in conjunction with other ISG members include network management and remote diagnostics capability.

A Milacron field-service agent at a client site that is having a machine problem will be able to dial into Milacron's network and run an expert system that will help him do remote diagnostics, according to Burnes. She said she is also talking with U.S. Sprint Communications Co. and MCI Communications Corp. to find a way for Milacron to resell its volume-discounted long-distance service to customers.

Milacron's Entrekin *believes his firm can sell CIM services*

Entrekin's aggressive goal for MIS calls for 30% to 40% of its business to come from outside the firm by 1992. It is a very tall order for an MIS operation that, according to Burnes, now

Cost of EIS a big deal for most firms

BY ALAN J. RYAN
CW STAFF

ATHENS, Ga. — The cost of developing an executive information system (EIS) averages $365,000, and an additional $208,000 annually might be needed to operate it, making the executive tool an expensive proposition for all but large firms with hefty financial resources.

That is the conclusion of a new study conducted by the Department of Management at the University of Georgia's College of Business Administration. The university identified 50 users of EISs and polled them on current EIS practices.

Of the 112 companies involved in the study, the average total corporate assets were $5.37 billion; three firms reported total assets of less than $1 billion.

While most firms that had an EIS said they do not measure the hard dollar benefits of their EIS, they do consider the costs that are involved. Of the 33 companies that listed annual EIS development costs, the figures averaged $128,000 for software, $129,000 in hardware costs, $90,000 for personnel and $18,000 for training.

In the category of operating costs, the average annual numbers were $117,000 for personnel, $46,000 for software, $29,000 for hardware and $16,000 for training.

However, it is no surprise that the top reasons why companies brought in an EIS were because of an increasingly competitive external environment and the need for timely internal information. The study also found that respondents rated the need for more accurate information as the least critical internal pressure, which may indicate that users of EISs already consider the information they receive to be accurate. The average age of the EIS in the study was two years.

Ninety percent of the companies that have an EIS said they have an executive sponsor to oversee the details of the EIS development process.

Teamwork

The study also found that all the firms in the survey have EIS builder/support teams; the average team size consisted of four people. The team was often composed of end-user support personnel, system analysts, programmers and executive staff support personnel. Only seven firms used vendor personnel when developing their EIS, the report said. The ability to work well with executives was found to be the most necessary skill for a development team member.

Development teams produce initial versions of an EIS quickly, the study found. Forty-six of the 50 firms said the initial version was developed in less than one year; the average time wound up being just 4.9 months.

Forty firms, or 80%, use a mainframe computer for the EIS. Of those, 18 companies said they employ a shared mainframe, 17 firms use a personal computer network connected to the mainframe, and five companies have a dedicated mainframe. Eight respondents said they use a PC network with a file server for their hardware.

Initially, the average number of users on the EIS was 7.8, but that number increased rapidly, as did the number of screens available, according to the study.

Of those polled, one-third said that their executives use the EIS away from the office but two-thirds did not. User friendliness is an important aspect for any EIS, and most companies said they used multiple interfaces. Most prevalent were keyboards, followed by a mouse and a touch screen. Most of the EISs in the study have both graphical and textual formats, and another 83% employ color displays.

Because the EIS often provides sensitive information, more than two-thirds of the firms said they employ user identification and password security, and some use a combination of user ID, password and terminal ID.

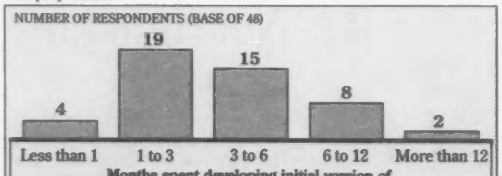
Of the information found on the EISs in the study, there were several external data sources that they could access. The sources primarily include news services (56% of the firms), stock markets (46%) and trade/industry data (34%). The corporate database is the most common source of internal data at 82%. Other internal data sources include the functional areas of the firm (62%), documents (38%) and other workers (34%).

The study showed that to be effective in supporting the executives it is designed to support, the EIS most often provides information categorized in many ways, including strategic business unit (88%), functional area (86%), key performance indicator (71%), product (67%) and location (53%).

Of the 50 firms that did have an EIS, 12 said they developed their EIS using custom-built, in-house software. Another 12 firms used vendor-supplied software, and 26 firms used a combination of both. Pilot Executive Software in Boston and Comshare, Inc. in Ann Arbor, Mich., were the most frequently cited vendors among the companies that used external vendor sources.

What does it take to build an EIS?

Users say it takes one to six months, in general, and a mix of good business and people skills



Most important skills for EIS development team, rated by respondents

1.	Ability to work well with executives
2.	Knowledge of the business
3.	Interpersonal skills
4.	Technical skills
5.	Ability to organize data

SOURCE: THE UNIVERSITY OF GEORGIA DEPARTMENT OF MANAGEMENT — CW CHART: DOREEN DAHLE

has just enough resources to serve its internal users.

"My biggest concern is being able to bring on board the right number of skilled people to keep ahead of the growth curve," Burnes says.

She fears the possibility that rather than increasing her resources, management may tell her to shift what she has to the outside clients, "where the money is." If this happens, she says, "our internal customers will suffer, and then Milacron can't be a viable company."

To begin with

"It's obvious that they're going to need start-up resources," Entrekin says of MIS. "One of the things we're wrestling with right now is the level of the start-up resource and how it will be focused." Entrekin and Burnes are preparing a business case projecting resource needs vs. revenue expectations, which they will present to the company president for allocation approval.

Technical resource enhancements are already under way. MIS is expanding the company's Banyan Systems, Inc. local-area network. Only 20% of Milacron's PCs are linked thus far.

The firm is also working with Northern Telecom, Inc. on a pilot X.25-based Integrated Services Digital Network to facilitate global communications. Entrekin says he expects greatest revenue growth for the company as a whole to come from overseas markets.

Across-the-board training in CIM technology is also necessary for ISG success. "Not only the MIS people but the salesmen and staff throughout the whole company need to be better trained in [CIM] technology to be able to offer it to our customers," said marketing services manager Martha Steier, who is working with Entrekin on setting up specific training programs.

Besides resource upgrades, employee attitudes must be reshaped for the ISG's mission to work. In preparation for dealing with outside customers, Burnes says she must "focus our staff to be more customer-oriented, to think about our users as customers and not as a captive audience. It's a cultural change, and like all cultural changes, there are a lot of rocky spots in the road."

But the potential for ISG's success will make the stress worthwhile, Burnes says.

"We've always been considered a service, like personnel or accounting, and you don't pay a whole lot of attention to the service groups," she says. "I think we'll get a lot more attention when we start generating some revenues for the company. We are the custodians of a very important company asset — our information. Not everybody appreciates that, but it is becoming a much more accepted idea."

IN THE UNITED STATES DISTRICT COURT FOR THE EASTERN DISTRICT OF PENNSYLVANIA

CIVIL ACTION NO. 88-3547

JOHN P. OAKES, JR., et al.,
Plaintiffs,
v.
OKI ELECTRIC INDUSTRY CO., LTD., OKI AMERICA, INC., and RICOH CORPORATION,
Defendants.

IMPORTANT NOTICE: NOTICE TO ALL PURCHASERS AND END USERS OF THE OKIDATA LASERLINE 6 PRINTER

PLEASE TAKE NOTICE that pursuant to Federal Rule of Civil Procedure 23 and an Order of the Court dated June 28, 1989, a Hearing will be held on September 8, 1989 at 10:00 A.M. before the Honorable Robert S. Gawthrop, III, in courtroom 7B, United States Courthouse, 601 Market Street, Philadelphia, Pennsylvania 19106.

The purpose of the Hearing is to determine whether a proposed settlement in this class action proceeding should be approved by the Court as fair, reasonable, and adequate. If you are a purchaser or end-user of the Okidata Laserline 6 Printer (the "LL-6 Printer), you may be entitled to receive certain benefits as provided for by the settlement agreement. You may also be entitled to appear at the above mentioned hearing and object to the terms of the proposed settlement.

You may exclude yourself from the class by requesting exclusion in writing. The specific requirements for requesting exclusion are set forth in papers filed with the Court. If you choose not to exclude yourself from the class and the settlement agreement is approved by the Court, you will be bound by its terms and will be deemed to have released any claims you may have which relate to the LL-6 Printer, its accessories, spare parts, and consumables.

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Co-Class Counsel:

Alexander Bono, Esq.
Blank, Rome, Comisky & McCauley
1200 Four Penn Center Plaza
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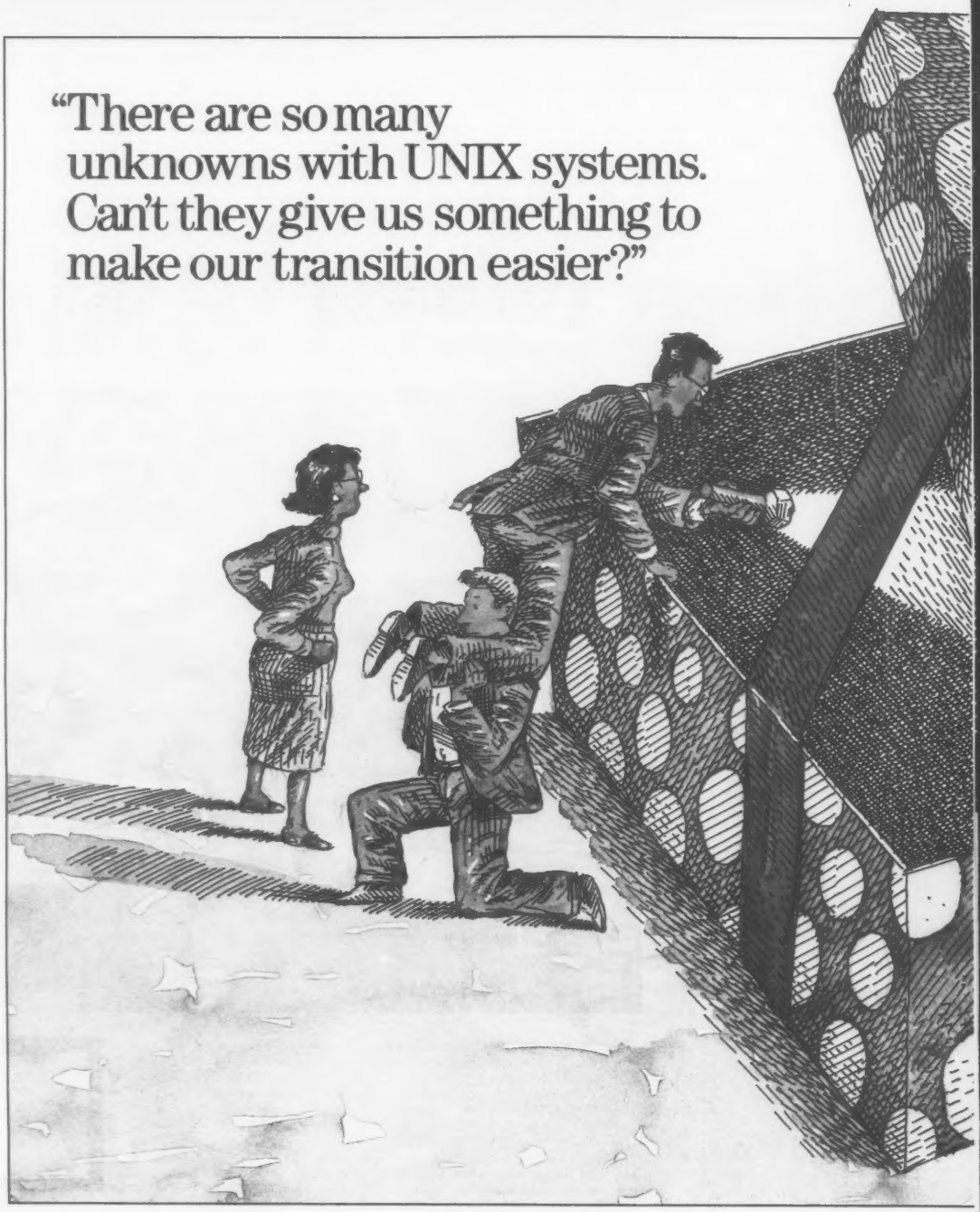

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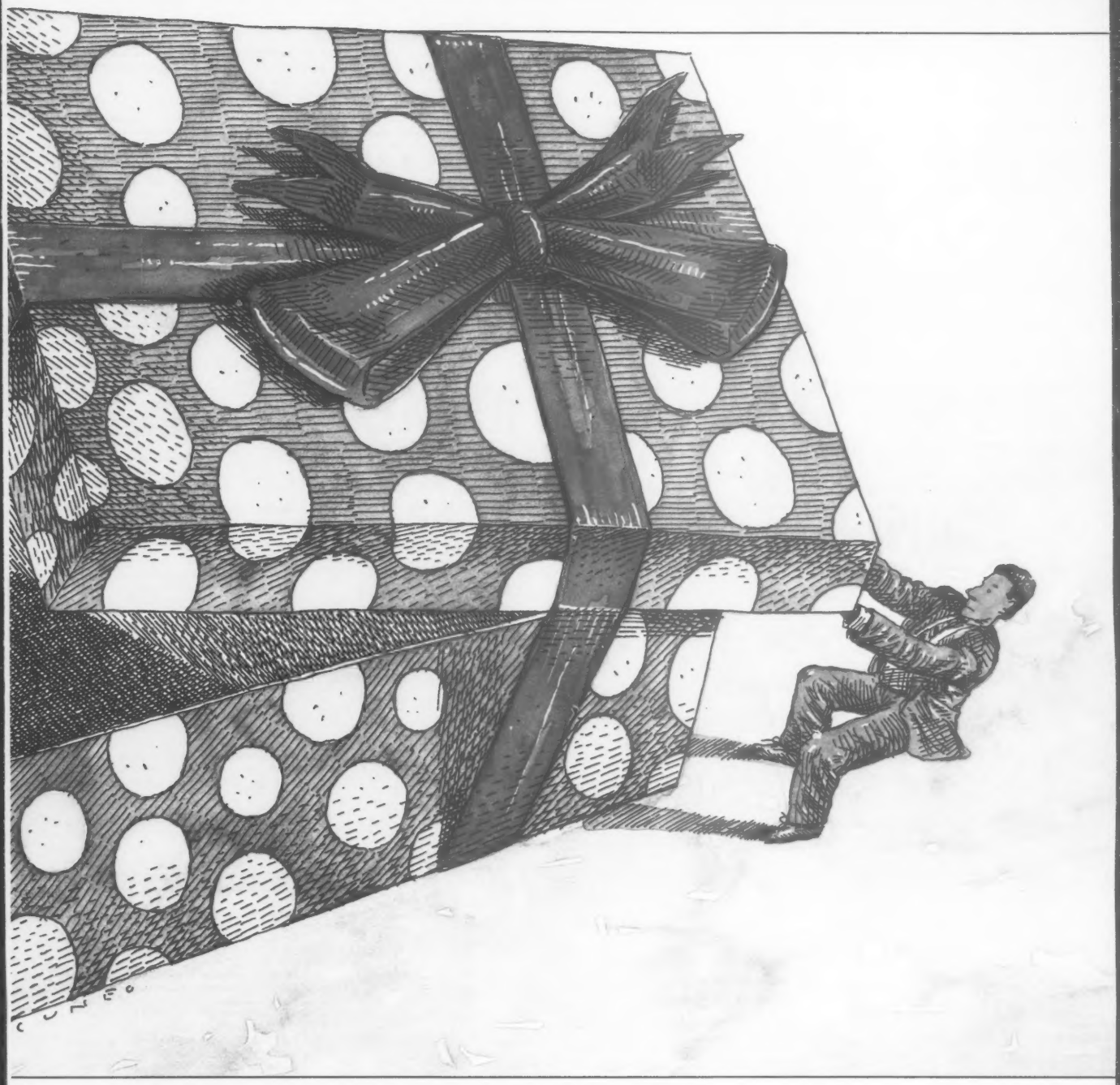

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CALENDAR

"Information Technology Driving the New Business Reality" will be the theme of the Society for Information Management (SIM) 1989 annual conference slated for Sept. 24-28 in Atlanta.

The conference will feature leaders from business and academia presenting sessions on issues facing the computer industry. Many of the presentations will focus on Europe 1992 and how companies can use information technology to establish a competitive advantage and integrate worldwide operations, the organizers said.

Confirmed speakers include former U.S. Secretary of State Henry Kissinger, Bellsouth Chairman John Clendenin, Lockheed Aeronautical Systems Co. President Ken Cannestra, retired Citicorp Chairman Walter Wriston and Raphe Berenbaum of IBM United Kingdom Ltd.

At the conference, SIM will announce the winners of the 1989 Partners in Leadership and International Papers Award competitions, and the recipients will give presentations on their accomplishments.

For course listings and registration material, contact SIM International Headquarters, Suite 600, 111 E. Wacker Drive, Chicago, Ill. 60601.

JULY 30-AUG. 5

Financial Management for Data Processing Annual Conference. Philadelphia, July 31-Aug. 2 — Contact: Financial Management for Data Processing, P.O. Box 27543, San Francisco, Calif. 94127.

Systems Integration: Market Directions and Strategies, 1989-1993. New York, Aug. 1-3 — Contact: CMP Publications, 600 Community Drive, Manhasset, N.Y. 11030.

Telestrategies Conference: Fiber Metropolitan-Area Networks and Local-Area Networks. Washington, D.C., Aug. 2-3 — Contact: Telestrategies, Suite 100, 1355 Beverly Road, McLean, Va. 22101.

AUG. 6-12

International DB2 User Group Conference. Chicago, Aug. 6-9 — Contact: IDUG, Suite 600, 111 E. Wacker Drive, Chicago, Ill. 60601.

Executive Communications and Support. Wellesley, Mass., Aug. 6-9 — Contact: The Institute of Management Sciences, 290 Westminster St., Providence, R.I. 02903.

Urban and Regional Information Systems Association (URISA) Annual Conference. Boston, Aug. 6-10 — Contact: URISA, 319 C St., S.E., Washington, D.C. 20003.

Successfully Managing the Information Resource. Boston, Aug. 7-11 — Contact: The Dooley Group Information Management Institute, Suite 109, 50 Ninth Ave., Hopkins, Minn. 55343.

First International Congress of EDI Users. Vancouver, B.C., Canada, Aug. 9-11 — Contact: The Electronic Data Interchange Association, Suite 550, 225 Reinekers Lane, Alexandria, Va. 22314.

Speakeasy Conference. Chicago, Aug. 9-11 — Contact: Speakeasy Computing Corp., 222 W. Adams St., Chicago, Ill. 60606.

Macworld Expo. Boston, Aug. 10-12 — Contact: Macworld Expo, Mitch Hall Associates, P.O. Box 155, Westwood, Mass. 02090.

AUG. 13-19

Software Futures Executive Forum. Boston, Aug. 14-15 — Contact: Digital Consulting, 6 Windsor St., Andover, Mass. 01810.

Flexible Manufacturing Systems Conference. Boston, Aug. 14-16 — Contact: The Institute of Management Sciences, 290 Westminster St., Providence, R.I. 02903.

Basic Project Management: Planning, Scheduling and Control. Chicago, Aug. 14-17 — Contact: American Management Association, 135 W. 50th St., New York, N.Y. 10020.

CADD Production Management. Purgatory, Colo., Aug. 14-18 — Contact: Philip Bennett, Department of Engineering Professional Development, University of Wisconsin-Madison, 432 N. Lake St., Madison, Wis. 53706.

Digital Image and Optical Disk Systems. Arlington, Va., Aug. 15 — Contact: Tracey Hubbard, National Trade Productions, 313 S. Patrick St., Alexandria, Va. 22314.

Introduction to Information Engineering. Washington, D.C., Aug. 15-17 — Contact: James Martin Associates, Suite 200, 1850 Centennial Park Drive, Reston, Va. 22091.

Multi-Net Expo '89. Houston, Aug. 17 — Contact: Entre Computer Center, Suite 112, 1221 Katy Freeway, Houston, Texas 77079.

AUG. 20-26

Agricultural Computing Trends for the 1990s Conference. Indianapolis, Aug. 20-22 — Contact: John Bruns, AACC Executive Director, Box 122, Claytonville, Ill. 60926.

IJCAI-89, American Association for Artificial Intelligence International Joint Conference on Artificial Intelligence. Detroit, Aug. 20-25 — Contact: AAAI, 445 Burgess Drive, Menlo Park, Calif. 94025.

Data Capture Technologies: Cost-Effective Alternatives to the Keyboard. Cambridge, Mass., Aug. 21-22 — Contact: Georgette Asherman, Institute for International Research, Information Technology Division, 331 Madison Ave., New York, N.Y. 10017.

Netview and Netview/PC: Managing Large Networks Seminar. Los Angeles, Aug. 21-22 — Contact: Technology Transfer Institute, 741 Tenth St., Santa Monica, Calif. 90402-2899.

Improving Your Internal Consulting Skills. Boston, Aug. 21-23 — Contact: American Management Association, 135 W. 50th St., New York, N.Y. 10020.

Deals, Dangers, Directions: Lessons of the High-Tech Industry. Santa Clara, Calif., Aug. 22-23 — Contact: Dataquest, Conference Department, 1290 Ridder Park Drive, San Jose, Calif. 95131-2398.

Uniforum Trade Show and Conference. Boston, Aug. 22-24 — Contact: /usr/group, Suite 201, 2901 Tasman Drive, Santa Clara, Calif. 95054.

Nuclear Information and Records Management Association Symposium. Minneapolis, Aug. 27-30 — Contact: Jane Hannum, NIRMA Administrative Office, 210 Fifth Ave., New York, N.Y. 10010.

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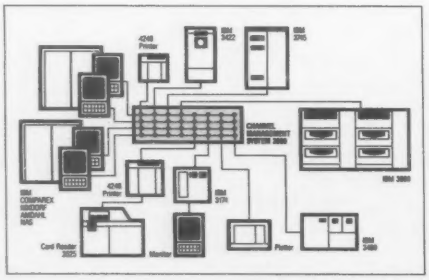

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Changing the fixtures in the house that IS built

BY MICHAEL SULLIVAN-TRAINOR

When H. Edward Nyce, executive vice-president of IS at Manufacturers Hanover Corp. in New York, talks about how technology decisions are now made at his firm, the picture that he draws is one that seems more in keeping with small-town democracy than with big business.

"We make our decisions by consensus," Nyce says, explaining that technology leaders within each business unit vote on new initiatives that must be weighed against corporate guidelines.

"We try not to impose policies that are going to impede the business. On the other hand, we need to make sure there is cohesiveness," he explains. "It's a matter of not encouraging too much risk, but not discouraging innovation."

This system of voting by appointed representatives of business division interests is a far cry from the structural isolation of the firm's old data processing operations division. While there used to be some gestures in the direction of business involvement, Nyce says, they were mostly symbolic. "There were steering committees involving the business representatives back then," he recalls, "and they were supposed to meet once a month. But they were lucky if they met once a quarter."

The change, according to Nyce, grew out of a corporate decision to divide the bank into five self-managing units as well as a desire to make IS more responsive to user needs.

What is happening at Manufacturers Hanover is happening in various degrees and other forms at many U.S. companies. All across the country, IS departments are taking measure of the changes facing the businesses they serve and testing new organizational structures that might better support those businesses.

"Everyone is experimenting with new models for information systems," says Charles Palmgrin, a senior consultant at O. D. Resources, Inc. in Atlanta, which helps companies deal with organizational change.

The first organizational issue IS managers confront when they open up the possibility of structural change is a familiar one — centralization vs. decentralization. While there is nothing new about this set of choices, there are some new models emerging in terms of the ways that organizations are substituting compromise for either/or answers.

The habit, at least until recently, has been for organizations to swing back and forth between the two extremes. This is something that has seemed to happen about every five to eight years, says Stanley Davis, author of *Future Perfect*, a book on the business environment of the future. The reason for these cyclical swings, he says, is that "companies need the benefits of opposite forms — the control of the centralized approach and the focus and flexibility of the decentralized approach." Unable to resolve the apparent contradiction between the two approaches, companies have frequently contented themselves with achieving what seems like a steady course by driving first in one direction and then another.

Now, however, some IS professionals are using technology as the glue for new organizational structures that combine centralization and decentralization.

The way this happens is that a centralized IS utility and a decentralized support organization are created as parallel structures, knit together through technology. The utility houses major systems that require tight technical control. IS support of application development and business computing takes place under the control of business units, with coordination from an executive-level IS function.

IS structures do not, of course, develop in a vacuum. The shape of an IS organization both influences and must be influenced by the firm in which it resides. Therefore, although there are certain broad trends that serve as the basis for the structural designs of many IS organizations, the actual working models tend to blend these common elements into patterns that are uniquely suited to the business objectives of their companies. Some examples of IS organizational models that reflect prominent business missions include the following:

- **The Service Model.** This model emphasizes efficiency in distributing technical resources. Marked by formal policies governing interaction between users and IS, this model ensures that resources are being applied where they are needed most. Companies coming up to speed in technology management are typically attracted to this style.
- **The Partnership Model.** Close alignment with the business and increasing user capabilities are the hallmarks of this structure. One element that clearly differentiates this model from the Service Model is that IS functional lines are broken down as the technologists become business professionals.
- **The Vendor Model.** This structure treats IS as an independent provider of services, which operates as a business and markets itself to its customer base. In some cases, IS may actually be an independent profit center, selling its services and/or systems products to both internal and external customers. In other instances, the customers

ANDY FREEBERG

Manufacturers Hanover's *Nyce balanced risk and innovation*

Sullivan-Trainor is *Computerworld*'s senior editor of special projects.

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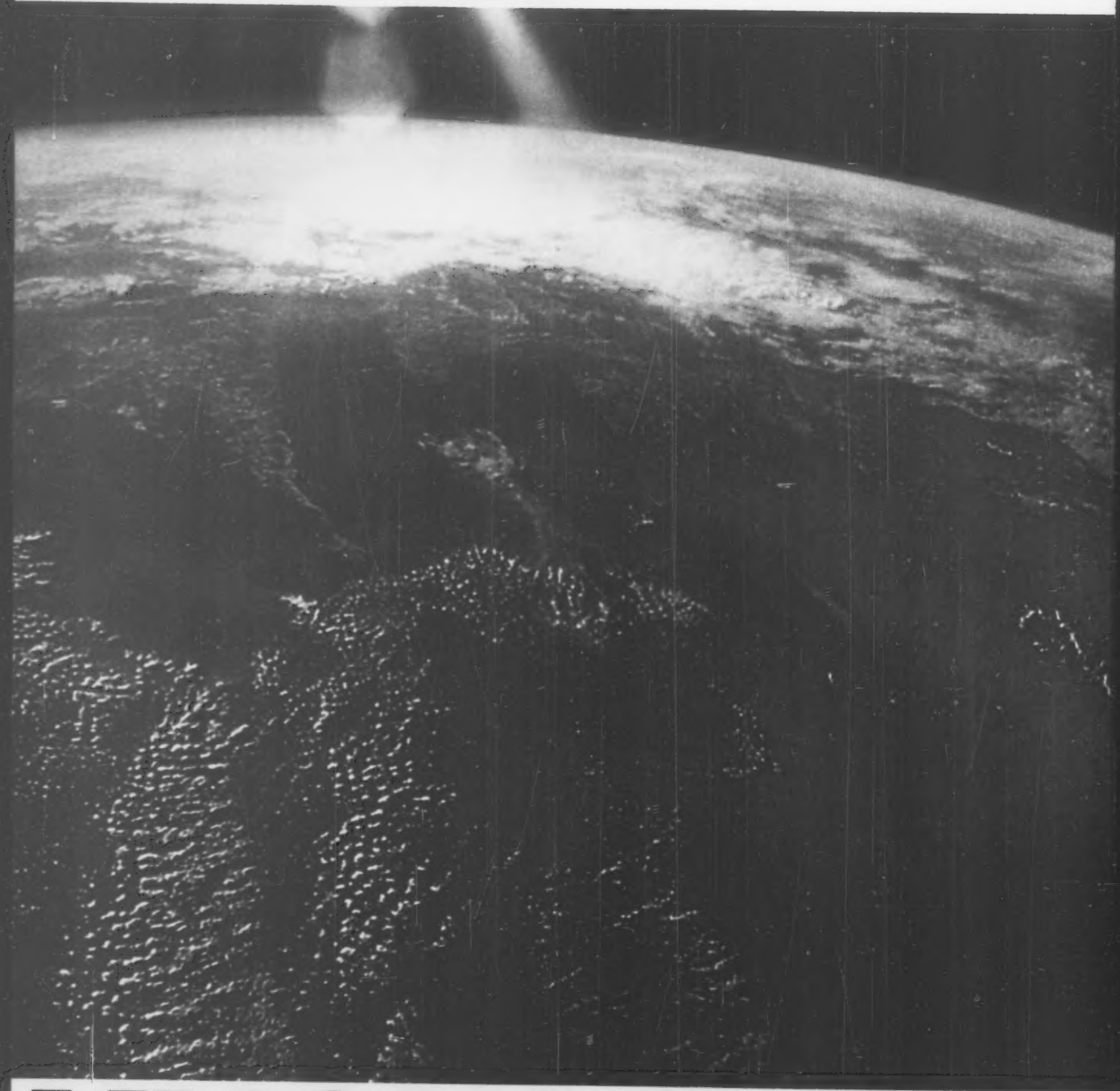

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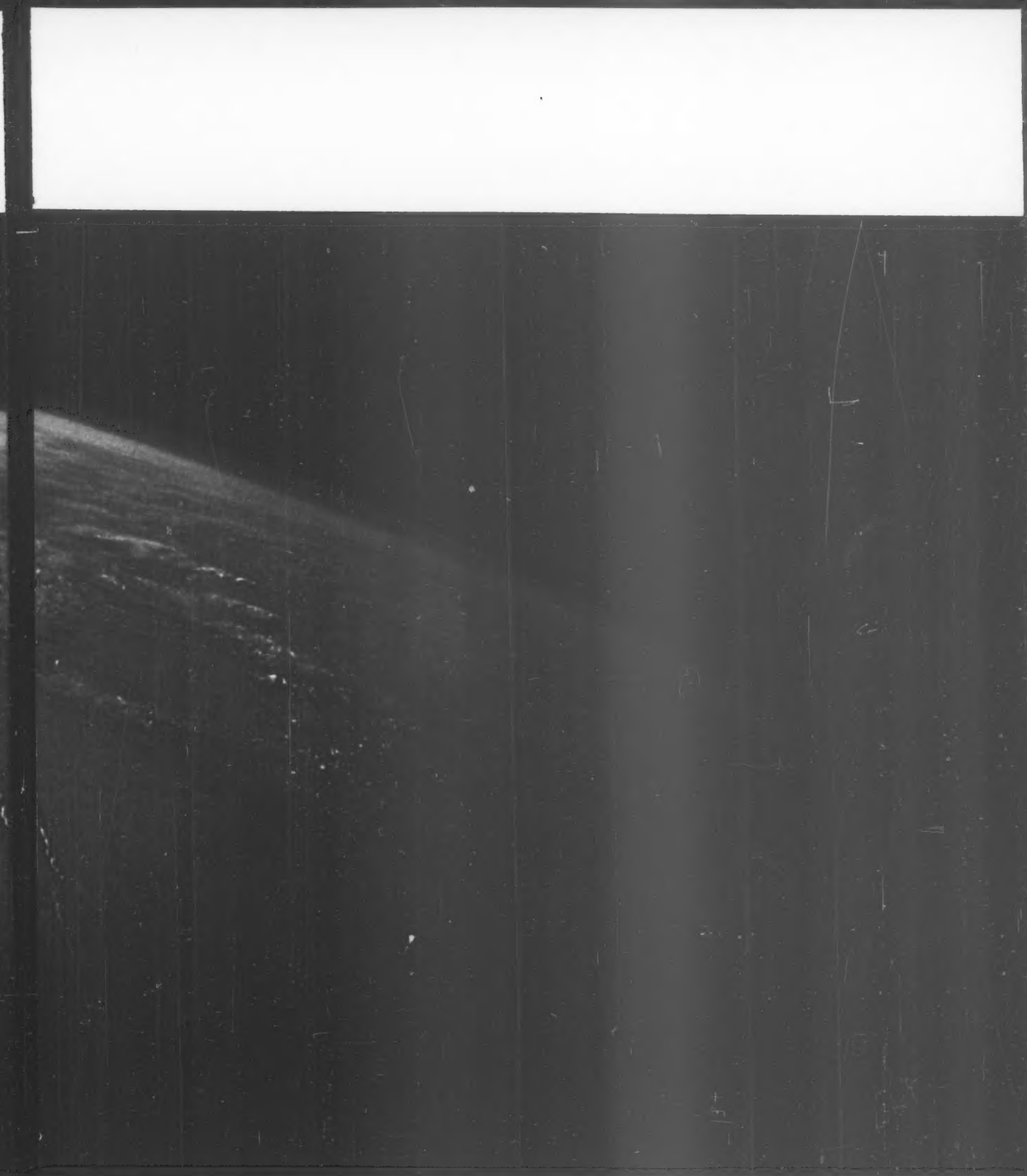

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CONTINUED FROM PAGE 51

are all internal and the IS unit remains an internal function. Companies concerned about the value of business units and IS services are attracted to the cost accountability features of this model.

• **The Expansion Model.** While also focusing on efficiency, this IS model is chiefly distinguished by its emphasis on support for a broadening agenda of IS services to new and frequently distant locations and subsidiaries. This is a structure for IS departments in organizations with a growth thrust and, often, a multinational presence. For that reason, a flexible architecture that supports common systems is required, as well as the ability to allow both local and global initiatives.

Huysman

• **The Strategic Advantage Model.** In this model, IS identifies with the business to such an extent that competitive products are developed jointly and the technology is seen as a distributed resource.

Although IS managers tend to focus on a single model to meet their most pressing business demands, over time they may implement pieces of two or more models in one IS organization. As the business climate changes, the truly effective IS models change with it.

SERVICE MODEL

Blue Cross and Blue Shield of Connecticut, in Hartford, is a good example of the Service Model in action.

Martin Huysman, who just left his post as vice-president of IS with the company to join Gunther International in Hartford, made several procedural changes last year to redefine the basic job of the IS professional and improve the effectiveness of systems by improving the processes of development and maintenance.

A major goal was to tame the flood of frequently overlapping applications requests that was swamping IS. "Two years ago, we had over 600 documented requests for changes to our systems originating in different corners of the company. None of the client [user] community was talking to each other," Huysman says. In an effort to create order from this chaos, a business systems development group was created, consisting of 10 IS professionals. "These people are not programmers or analysts," he explains, "but people who coordinate and negotiate agreements with the clients on the best way to handle the requests."

The reorganization consolidated the user requests into 30 major efforts. IS resources are now allocated based on these programs. But more than that, the move positioned IS as the forum for communication about systems requirements among various parts of the business community.

"By sticking to our guns and saying we will only work through this new group, we got clients involved in the concept definition, and we're providing the environment for clients to talk to each other about their common business needs," Huysman says.

The group also interacts with the company's management level through a strategic planning team made up of five functional vice-presidents who monitor resource allocations and develop a quarterly schedule of priorities.

According to Huysman, the new process is helping IS demonstrate to management that it can orchestrate and expedite systems usage throughout the organization and that will, in turn, help to define the IS role and responsibilities with the business units.

While formal procedures were needed to justify service delivery at Blue Cross, allowing the company to break free of traditional separatist structures and accompanying inefficiencies, other companies find that they need less, rather than more, structure. In some instances, that means turning to a more fluid and permeable arrangement.

PARTNERSHIP MODEL

In companies that emphasize partnership, lines blur between IS and business. Barriers of distance and specialization give way to close collaboration. "In many companies, IS is no longer being singled out as a unit," says IS consultant L. Paul Oullette in Bedford, N.H. "It's being blended in as part of the company."

Miles, Inc., an Elkart, Ind.-based health care company, is moving strongly in this direction.

Thirty key professionals have received training in business, interpersonal and consulting skills. John Tremse, vice-president of IS, is aligning IS with the company's research and development and sales and marketing organizations by dedicating support to those departments. A third segment of IS acts as a utility.

Miles' Tremse

As a result of the training program, Tremse sees his staff educating users in the application of technology rather than just shepherding them through the basics of using it.

Also, Tremse has opened the door, allowing users to acquire technical expertise or software from outside the company. "In the old days we'd protect our turf and not let them use somebody else's help," he says.

One example of the extent to which these initiatives have produced closer ties between IS and business units is the group's participation in mergers.

"For the first time a year ago, we were invited to come in during a merger and look at the other company's IS operation," Tremse says. "It was a recognition that we don't just talk about computers anymore, but that we can talk about business strategies." Business savvy is filtered back to the more technical areas, he says, through migration of talent between the IS groups.

VENDOR MODEL

IS departments moving in the direction of a Vendor Model require the same sort of complex skill set being developed at Miles, plus well-developed marketing know-how. The firms in which such models evolve are often concerned with the payback on their IS investment. Rather than seek indirect bottom-line savings, they choose the direct route of making IS responsible for revenue generation.

The decision to remodel the IS organization at Weyerhaeuser Co. into a vendor organization grew out of a reexamination of the firm's entire wood-products business. Weyerhaeuser executives wanted all aspects of the corporation to show strong revenues, and they were interested in quantifying how much IS investment was required. The independent unit was born when the corporation tried to determine whether it would be more cost-effective to contract out IS support services than provide it internally.

"To answer the question of which would be better, it seemed reasonable to set ourselves up as an independent vendor, selling to the parent company. This enabled us to price our products and benchmark our services against our competitors," says Susan Mersereau, vice-president and general manager of Weyerhaeuser Information Systems.

Weyerhaeuser — which sells 85% of

Continued on page 56

Staying in step with the company

BY DAVID GABEL

It's a little like trying to play Simon Says with a blindfold on. You know that you are supposed to be doing something, but it is not always clear what. Most IS managers today have a sense that their companies are changing and their departments will also have to change. What is less evident is how fast to move and in what direction.

Timing is everything. Although "slow to change" ranks high on the list of IS criticisms, changing too quickly or on the basis of too little information can make the IS organization evolve into something that is not appropriate for the company as a whole. The tough part is matching your steps to the corporate situation.

"When the direction is very clear from the top," says Paul Berger, a Lawrenceville, N.J.-based consultant specializing in IS management, "then the pace of change in IS can be very rapid. On the other hand, if the direction isn't so clear, then moving in the wrong direction can leave the IS organization out in left field."

How can an IS executive find the pace and the path that are right for his organization? It may take some digging, according to Berger, especially if you are not part of the management team. If you are not in the inner council, he says, "You have to be sharp enough to find out what is really going on." Berger suggests several ways that an IS professional can gather intelligence on corporate direction.

The first and best choice, of course, is to become one of the decision makers. If that is not in the cards, he says, at least try to get on the invitation list for policy meetings or on distribution lists for meeting minutes. It is also a good idea to develop contacts among line department heads, who are always good sources of information. Then there is the informal information network in any organization that a manager can cultivate for his own use. Gathering information when one is left out of the formal decision-making loop is usually a matter of developing all of these sources and adding one's own powers of deduction in analyzing the information thus obtained.

Of course, sometimes even a firm's top management does not know what is going on, so being part of the decision team does not always help. "Take the situation with divestitures," Berger says. "The decision may have been made, but few people know about it, because of strategic reasons." When that is the case, the IS director needs to make some intelligent guesses, based on the best judgment and research available.

One person who followed that course is Russell Henault, director of IS for Houston-based Igloo Products Corp., a plastics company whose most familiar product is cooler chests. In the mid-1980s, Igloo was one of 10 companies in a large conglomerate that was supported by a central corporate data processing operation. In 1986, the conglomerate sold nine of the 10 units, including Igloo, and each divested division became responsible for its own IS. Suddenly, Igloo was faced with the necessity of building its small DOS shop into something that could support its new independence. Henault, who came from corporate DP, joined the company with the breakup.

"It was tough to have a clear course," he says, explaining that top managers were too preoccupied with planning for as-yet-unspecified new products to provide much guidance. They did make it clear, however, that all current systems had to be maintained and that the company would soon be diversifying beyond its current base of seasonal products in order to achieve a more balanced revenue stream.

Igloo's Henault

In the absence of clear mandates from the top, Henault sought advice from consultants and turned his staff into researchers who extensively queried other IS organizations operating in similar business environments.

Henault took the initiative to find out how he needed to change his organization; he also determined the pace of change needed, which is the best way to keep IS in line with with corporate strategy.

Gabel is a free-lance writer based in Northport, N.Y.

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its services to internal clients — then decided which services it could provide more cost-effectively to the parent company and which should be purchased from other vendors.

"It really allowed us to look at areas where we added value for the company," Mersereau says.

In order to make the plan work, however, she found she had to hire managers from the business side of the company to run product groups. "We've had to infuse the organization with sales and marketing skills and get the managers to really operate their departments as a business," she says.

Weyerhaeuser's Mersereau

One way that the company has chosen to build marketing savvy, as well as bolster revenues, is the pursuit of external customers for its software and services. It currently sells manufacturing applications as well as recovery and systems integration services.

In addition to a computer and software group for application development, Weyerhaeuser IS has worldwide telecommunications and manufacturing groups that focus on business areas. Finance, planning, sales and marketing and administration components are also included in the structure.

More changes are on the horizon. As the parent company reexamines the amount it has diversified, IS will have to adjust its orientation. "Every time the organizational structure of the corporation changes, it impacts technology and vice versa. Weyerhaeuser IS is right in the middle trying to bridge the two," Mersereau says.

EXPANSION MODEL

While evaluating IS is frequently the impetus for adopting the vendor model, extending IS into new realms is the goal of the expansion model.

Finding the right structure to support diversified growth while maximizing efficiencies is no easy matter. Just ask Phil Friedman, director of technology at Philip Morris International. "We acquired Kraft Foods, and we have General Foods in Europe. We're looking for synergy there between the companies," Friedman says. "At the same time, we're consolidating operations in the tobacco company."

As if all that is not complicated enough, in 1992, Philip Morris affiliates in Europe will become part of a single economic system. What this means, he explains, is that, in addition to development resources to support the local affiliates, there will also be a need for common systems across regions.

Philip Morris is attacking the problem by simplifying the role of IS into two types — data workers and knowledge workers. Friedman explains the difference this way: The knowledge worker manipulates data on an intelligent workstation using sophisticated PC software; the data worker is concerned about maintaining consistent and reliable data and managing the architecture.

The company is recruiting knowledge workers out of the ranks of business professionals who have been exposed to IS in school and in various positions within the company. Data worker positions are being filled by advanced IS professionals.

Philip Morris' Friedman

"The knowledge worker will have a good IS background and a good understanding of the technical tool bag. The data worker will continue to be the problem solver and know the tools intimately. There's enough work and challenges to keep both sides occupied to the year 2000," Friedman predicts.

Consultant Oullette sees many organizations adopting a similar structure. "The people in the line groups end up understanding the business as well as the technology," he says. "The technical guru will be in database administration and telecommunications."

STRATEGIC MODEL

At least for now, however, the development of competitive advantage systems is still an IS-intensive task. One firm where IS has organized around that mission is Manufacturers Hanover, where Nyce is readying for another organizational shift.

Nyce's odyssey of restructuring began in 1985, when he was faced with a corporate decision to decentralize management and divide the bank, then the fifth largest in the country, into five self-managed sectors.

With a mandate to give each sector "maximum control over all needed resources," Nyce struggled with the question of how to move IS closer to the business users while coordinating corporate resources for competitive advantage.

The answer was to break up the bank's large operating divisions, which included 3,500 technical professionals, into units for each business sector. Each sector has a technology and business chief working closely together on IS resource management.

In addition, an IS utility was formed to manage the voice and data networks, bulk processing and corporate database.

To coordinate the new structure, a Strategic Technology and Research group was formed. Made up of the

Continued on page 60

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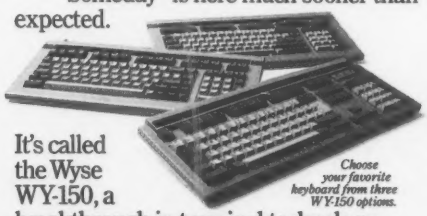

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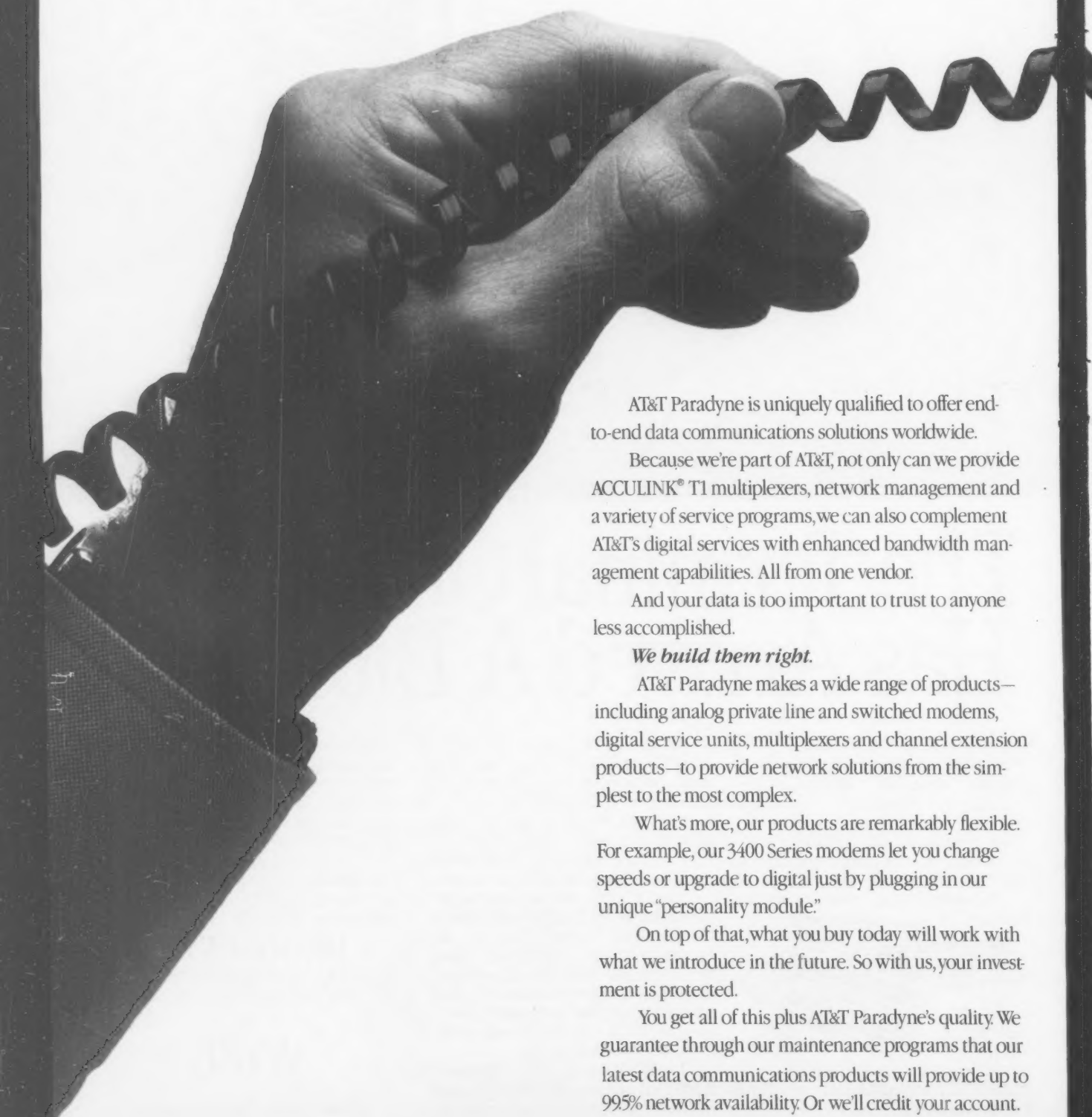

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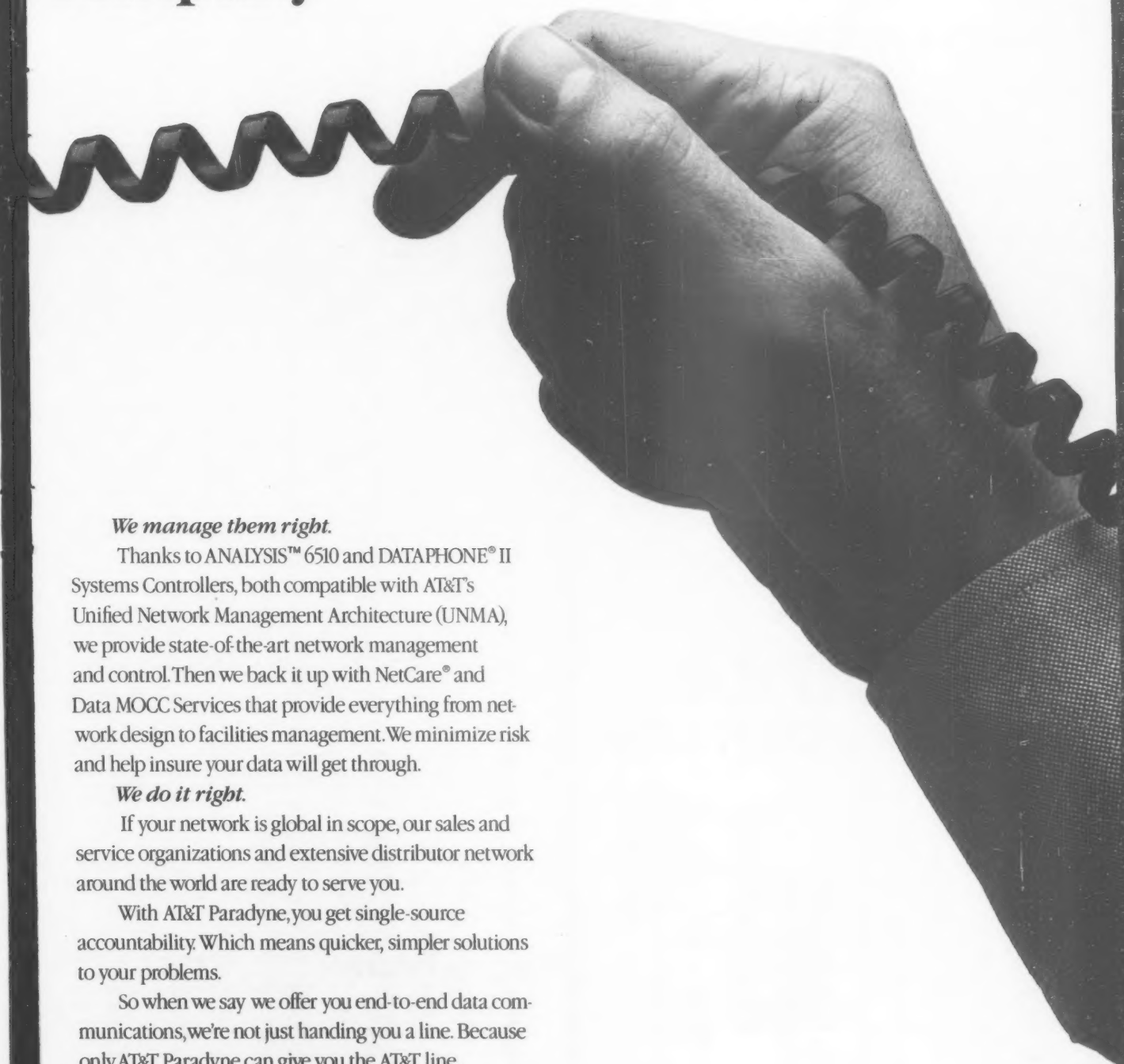

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Approaching service in a businesslike manner

BY WILLIAM HARRIS and SUSAN BEHNKE

The service ethic is back in business, reasserting itself as a driving and, in some instances, a reorganizing force. This revival is one that has profound implications for the information systems organization.

In and of itself, there is nothing terribly new about the idea of building reputation and market share based on reliability and responsiveness. What distinguishes this particular upsurge, however, is the dawning recognition that service quality can be built only from the inside out and that IS can be the pivot of such efforts.

Clodagh Duff phrases the idea succinctly: "You can't expect your employees to give good external service if they don't get good internal service." Duff is operations manager at TMI North America, Inc., the U.S. branch of Time Management, Inc., the Danish consulting firm that helped Scandinavian Airlines System (SAS) engineer its renowned employee-centered strategy for reviving the business through service excellence.

In one year, SAS went from a loss of $17 million to a profit of $54 million. Duff claims the key to that turnaround was a revamping of the organizational structure; SAS prioritized the needs and interests of employees who provide direct services to customers — flight attendants, ticket agents and the customer service staff.

Because technology in most organizations is now not only the major vehicle for delivering products and services but also the governing element in the work environment, Duff says there is a strong message for IS in what SAS did. Of course, SAS is a corporation, whereas IS is simply a department within a corporation. But even if it is not strictly speaking a business, there is no reason why IS cannot think and operate like one. No other function of the modern corporation affects as many people as directly as IS. Furthermore, the way that IS delivers its services to internal customers can influence the way external customers are served.

The message here is not that the IS department should necessarily be a separate utility, but that it does make sense for a chief information officer to say, "I've got to run the IS function as if I were running a separate business with a product to sell."

This form of organization unites the external and internal markets of the firm in the minds and behavior of IS personnel. Every user then becomes a "customer."

Some of these ideas are already at work in the cash management division of a New York-based multinational financial institution. In addition to the regular IS department, which takes care of systems development, data center operations, network management, quality assurance, systems software and so on, the division also has a marketing staff, which plans promotional programs, and a sales staff, which concentrates on selling the division's information-based products into established and potential markets. Organized along product lines, the product-development function strives to meet customer needs. The product-development staff meets with external customers, such as chief financial officers and treasurers, and asks them what kinds of products they would find useful.

Although the focus of IS marketing efforts here is the external customer, in-company users and commercial accounts mingle as equals at the support level. The operations and technical services sector of DP maintains a Help desk, which is also used by the internal cash management users, to assist in customer account problems and other network difficulties.

An IS department that effectively markets technology to internal customers and follows up with service and support improves the company image by avoiding conflicts between customers and poorly trained or demoralized employees.

IS also advances its own cause in the process. Technically, an IS organization can do a great job and still be regarded as a disaster area. Proper targeting and packaging of services can make a big difference in the way that IS is perceived.

At one firm, which manufactures trading systems for the securities and exchange business, the IS department found an effective way to verify its worth and hone its service edge at the same time. In developing an IS plan, IS performed a Critical Success Factor (CSF) analysis. It interviewed top managers to see what kinds of management information they needed to measure their departments' performance. That input translated into specific systems development projects, which IS benchmarked against CSF measures. The plan gave the IS department both a vehicle to publicize its successes and a means of quantifiably demonstrating its contribution to the business.

Cultivating company employees as a market for technology can also help to clear the way for strategic IS initiatives, which might otherwise be derailed by resistance or lack of understanding.

This benefit was seen in a Fortune 50 consumer products firm that successfully implemented an artificial intelligence system designed to expedite customer service. Although employees are often reluctant to transfer their knowledge to a computer for fear of becoming obsolete, expert systems were not viewed as a threat at this company because it has long been committed to a policy of company-wide personal computer use and has supported that policy through the extensive training of employees in PC use and the transfer of IS personnel into user organizations. The service staff soon understood AI's benefits and embraced the concept, which meant that better service could be offered to more customers without adding personnel.

Still another major benefit of treating the IS department as an innovative, people-centered company with both external and internal constituencies is the motivational impact on IS employees. Organizing the department as a "company" acts as a tremendous stimulus to departmental morale and sense of mission.

As seen in the cash management division of the financial institution mentioned previously, the IS department is strongly identified with the company's business goals. For example, the firm's electronic funds transfer function is crucial to its operation. If the computers are not up and funds cannot be transferred, the institution bank could stand to lose millions of dollars in penalities. This realization and dedication to service is ingrained in the employees, who see themselves as the lifeblood of the business.

At SAS, company President Jan Carlzon told everyone from management to baggage handlers that they were in the service business, not the transportation business; the test of the airline's effectiveness came down to "50,000 moments of truth each day," whenever employees came into contact with a customer.

For the IS department, the real task is to create the means and the climate for service by adding marketing, sales and support to its traditional product development function. The bottom line is credibility, which translates into effectiveness. •

Harris and Behnke are chairman and president of Behnke Harris & Associates, Inc., a New York/Atlanta consulting firm that specializes in the integration of information technology with business strategic and operational requirements.

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Changing fixtures

CONTINUED FROM PAGE 56

technology chiefs and Nyce, the group ensures that corporate standards are carried out and investigates emerging technology.

This summer, further changes are planned to hone the focus on strategic efforts. The five units will be compressed into three by combining three wholesale banking functions into one unit.

Richard J. Matteis will become chief executive officer of the new combined unit, which encompasses the bank's profit-making IS services and will focus on creating cross-selling opportunities and efficiencies in cash management, funds transfer and trade and custody services. The IS functions that support these services will be under Matteis' wing.

It is clear that all of these organizations are positioning themselves for the future by adopting new organizational structures. It is also clear to these information systems executives and to others who have experienced organizational change more than once in their careers that the organizational structure alone does not spell success.

Although implementing the wrong model for the organization — one that cannot be adopted because of cultural or structural limitations — is a sure path to disaster, executing the right one takes something more than just following a map of functional reports.

"I'm not sure there is an exact structure that you should use," Huysman says. "If you have the right roles and responsibilities and the right chemistry among the people, with the right vision, you can make midcourse corrections as they're necessary — and you will succeed." •

Strengthening the union

GE Canada opts for single system, closer ties to businesses

BY J. C. KIMBROUGH

Contrary to what you may have heard, hardware and software are not the key to a successful information system. What really matters is attitude.

"For things to happen," says Geoffrey Relph, chief information officer at GE Canada in Toronto, "you need a prevailing environment in the organization that predisposes it to change and predisposes it to the notion that technology is important as an enabler for that change."

Things are definitely happening at GE Canada. The company is engaged in a major renovation of its IS technology with the goal of positioning the company for the new century. "We're committing about $30 million over the next few years to the installation of a major integrated and real-time application system," Relph says

The system, however, is only part of a story that begins with a new vision of what technology can do for a company and hinges on structural changes affecting both the business organization and the IS organization. In addition to revamping its systems, GE Canada is changing its operating culture to emphasize information sharing, fast-response capability and teamwork.

GE Canada's Relph

The saga began about two years ago, when GE Canada's top management brought in Andersen Consulting to review its information systems.

At the time, both the systems themselves and the IS staffs supporting them were as diverse as the corporate structure. GE Canada is split into three main groups: consumer products, lighting and appliances; high-tech; and power systems and supplies. Below that level, GE Canada supports 17 businesses.

Steven Tower, a consultant at Andersen Consulting, describes the systems structure he found upon arrival as "something of an octopus."

There was no commonality, he says. Business units were using different types of hardware and different versions of software. He adds that this lack of cohesiveness affected the employees' attitude and acted as a stumbling block to teamwork.

Tower recommended that the 17 entities in GE Canada learn to use IS as a competitive weapon and work together as a family of businesses. To do that, GE needed a single hardware platform, a single application system and the ability to share resources. It also needed a unifying strategy supported by strong leadership.

Andersen Consulting brought together a group of about 25 people from the three major business units, including both business and IS representatives, and helped them put together a 40-page list of desired hardware and software features. IBM was chosen as the primary hardware supplier. There were two reasons for that choice, Relph says. One was IBM's corporate stability, and the other was the perception that "it is the organization that attracts the most application software development."

When it came to choosing an integrated software system, however, GE Canada also had to find one that would work with the Digital Equipment Corp. systems used by its design and manufacturing engineers. The company selected R-2 from the West German firm SAP.

In addition to compatibility with both IBM and DEC, R-2 offered real-time updating and full integration among modules that include repetitive and custom manufacturing, order processing and distribution, marketing and sales support, purchasing, contract management, plant maintenance and financial systems. The system is also multilingual. It can accept and translate English, French, German and Italian.

The various GE Canada businesses can opt to use all the functions offered by the R-2 system, or they can choose just a few. They can also tailor specific applications to their particular needs without interfering with the integration process.

The new GE Canada information system is in the development stage. Some major implementations are expected by the first quarter of 1990, and a prototype is under way at the GE-Fanuc group, which is a joint venture between GE and Japan-based Fanuc. The complete system is expected to be fully operable in 1993.

Because of its size and diversity, the system will require strong central support. Some of that support will come from a central IS group. It was decided, however, that IS should remain mostly decentralized to provide local applications expertise and follow-through. Because standardization coding and data-handling procedures are crucial to a system that crosses many businesses, a multigroup standards committee was formed.

GE Canada has also set up a Project Council, which includes Relph, the

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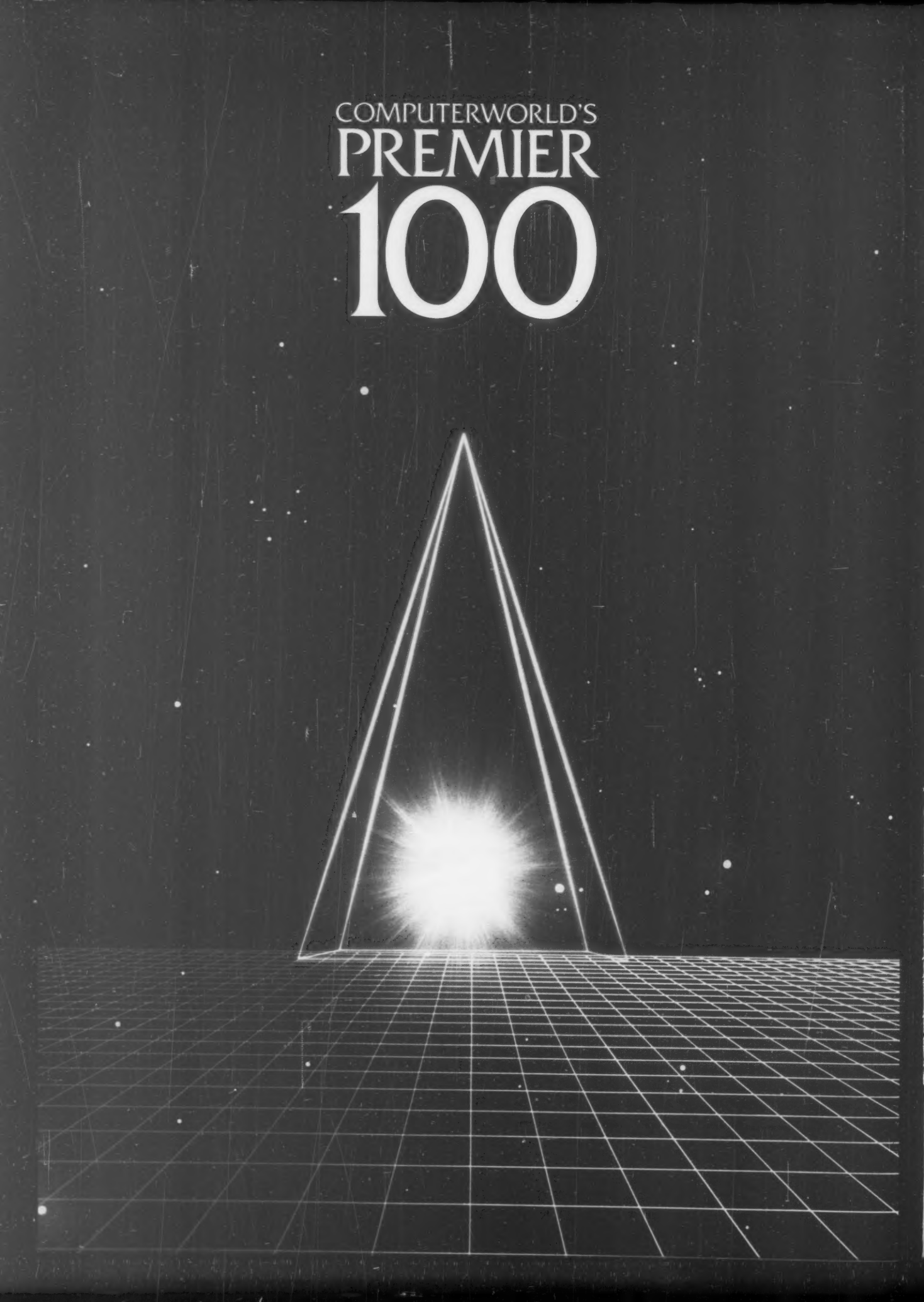
Kimbrough is a free-lance writer based in Los Angeles.

COMPUTERWORLD'S PREMIER 100



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COMPUTERWORLD

INTERVIEW

In change, there is opportunity

IS organizations are used to dealing with technological change. Ralph Loftin suggests businesses take advantage of their experience as change reaches throughout the company

In these tumultuous times, there are opportunities for information systems organizations to support their companies beyond system development and operational support, according to Ralph Loftin. Businesses are going to need help figuring out how to cushion the shock of change and how to build resiliency into their organizational structures. IS could, with a little effort, stake claim to the role of guide.

Loftin, who has held executive IS positions at Blue Cross and Blue Shield of Massachusetts and General Electric's Information Services Division, is president of Ralph Loftin Associates, a Newton, Mass., consulting firm, and a partner in the consulting consortium, The Dooley Group. Loftin specializes in IS management, particularly as it relates to planning and organizational effectiveness. He recently spoke with *Computerworld* Features Editor Joanne Kelleher about how IS can serve as a force for organizational innovation.

You have said that IS can play an important role in helping a business adapt to change. I wonder if you could talk about some specific ways an IS organization can do that.

One way that the IS organization can help the business adapt and become responsive is to become more adaptive and responsive itself in terms of its internal operations. This means becoming extremely flexible in terms of the ability to alter its own organization structures and operating on short notice to accommodate perceived changes in the business environment.

Beyond that, however, the IS organization really can become a primary instrument of change for the business. If the people in the IS organization, particularly the business analysts and others who come into contact with the business community, can become practiced and skilled in change management, then they can function almost as internal organization development people for the business community.

What would that entail?

Helping the business community understand and deal with the resistance that change invariably provokes. Helping to formulate approaches and strategies that would ease the adjustment to new organization forms or new methods of operation.

It sounds like you are talking about something that goes beyond dealing with changes in technology.

That's right. It almost doesn't matter what kind of change is being perpetrated on an organization. It doesn't matter whether the change is a change in the use of technology, a change in organization structure, or a change in work roles. Whatever the change is, the responses are really the same.

If IS people can understand how to deal with change that is driven by technology, they are capable of dealing with change that may be driven by other kinds of forces as well.

Why would IS be a logical group for helping to deal with that?

It is primarily technology changes that would bring the IS organization into play with the business unit, but often the need for technological changes is stimulated by changes in the business environment. A system project may carry with it all kinds of implications for organization structure and job roles and things of that sort.

How well-equipped would you say the average IS department is at the moment to teach others about organizational management and change?

Most are terrible at it. I'd say they'd rank somewhere between zero and minus 12 right now. I think traditionally the IS people have chosen not to deal with issues like job function and adjustment to changes in relative power within the user organization and changes in structure. This may be because they feel they don't have the skills, but probably it is because they haven't really been sensitized to these kinds of issues.

So is the idea that the IS organization should work on its own orientation and then carry what it learns out into the business?

I am suggesting that the IS manager look within his own organization and explore the use of some organization development methods, such as survey feedback techniques, problem-solving groups, empowering lower level employees, really rethinking the whole notion of power within the IS organization. That whole area, I think, is a very profitable one for the IS executive to look at, even if he never goes into the business community with it at all. And I also think it is essential that the IS executive practice some of that within the IS organization before trying to practice it on the business.

What kind of reception could your average IS manager expect from business managers when he makes suggestions that fall outside his accepted technical specialties? Is this a risky proposition?

The extent of the risk is a function of the relationship that exists between the IS manager and the business community. The individual relationships that the IS manager has with business managers is going to determine the reception that he gets.

Beyond that, I think the approach that the IS manager takes in trying to introduce this idea to the business community is critical. You can't ask people to take it on faith. You have to point to situations in other businesses that show the advantage of doing things differently. It is very difficult to ask the business community to do something different and to take it on faith that it is going to be better.

Do you feel it is best to test this kind of approach on a limited basis, maybe with one business unit?

Absolutely. Some of the most successful examples of IS involvement in business change have combined a small business unit and an element of the IS organization in a way that can be seen as a kind of microcosm of the organization at large.

Can you think of any instances in which structures and methods developed in that way have actually filtered out further in the business organization?

Yes. I can think of two, actually. In one case, where the company is highly divisionalized, one division initiated some partnership arrangements with regard to executive education and identification, and the successes there have exerted a kind of pull-through effect into other divisions. What the first division did was to go through an extensive campaign with the business unit manager and his subordinates to acquaint them with the potential for information technology in this business. This business is not one you would think of as having a lot of potential for exploiting IS technology, but they found some things that really produced some dramatic gains in profitability.

Did what happened there go beyond technology implementation? Did IS also participate in some sort of change to the organizational structure?

Yes. As a matter of fact, some of the opportunities that were identified had nothing to do with information technology. They had to do with rearranging the

distribution organization — closing some warehouses, rearranging the distribution of products among distribution points and so forth — and came out of joint sessions that were initiated by the IS community.

What was the second example you were thinking of?

In that company, the style of management practiced by the IS organization has been adopted by some of the business units, largely through the leadership of the senior IS executive.

That raises an interesting point. Isn't the usual goal for IS to have its management style or structure match the organization, instead of the other way around?

The good ones usually tend to mirror the business organization. The IS organization ought to be aligned with the business that way, if not in terms of the payroll relationships within IS, at least in the way it appears to the business. That applies not only to job titles and functional responsibilities but also to management style.

But it seemed, from the example you cited, that you might feel mimicking the business organization in terms of structure and style isn't always a good idea. Is that true?

It is a good idea, but it can be carried too far. In some ways, I think IS has to be constantly testing the company in terms of the culture. For example, in an old-line manufacturing organization, it may very well be that the business requires more innovation or more risk-taking than the culture would appear to permit.

So it may be necessary that the IS organization test that in some ways by embarking on some experiments, by encouraging the business to do some things in innovative and creative ways that traditionalists wouldn't buy into. And maybe, by the same token, in a real go-go kind of environment, the IS organization ought to try to be a little more restrained and thoughtful or purposeful in the way things get done. That kind of moderating can be very effective.

So, IS can't just take a yes-man kind of a role. It has to be concerned about the needs of the business, as well as maintaining consistency with the culture. And where the needs of the business require something different from what exists, the IS manager and staff should test that and confront the business with the need to be doing something different. It is, by the way, possible to do that in nonhostile and nonaccusing kinds of ways.

But what if the business managers don't think there is a problem?

It is essentially impossible to do this with any effect in the absence of a perceived problem. There has to be some perceived problem that everyone can recognize as something for which the conventional methods will not work. So the IS executive has to look for opportunities and be a little bit opportunistic in his approach. •

Union

CONTINUED FROM PAGE 61

general managers of the businesses and the corporation's chief financial officer, to make policy on issues that cannot be ironed out at the standards-committee level.

Although the actual structure of IS is expected to change little, the emphasis is on developing common skills. The goal is to allow IS staffers to go comfortably from one GE business to another. GE uses some vendor training in conjunction with IBM and SAP but relies heavily on its own resources and in-house training.

One of the ways that this development of common skills is accomplished is through the use of implementation teams to set up projects and educate those involved. These teams, which are made up of both IS staffers and users, install local application modules; the plan is to have part of each team stay on to maintain the applications, while the other members move on to another project.

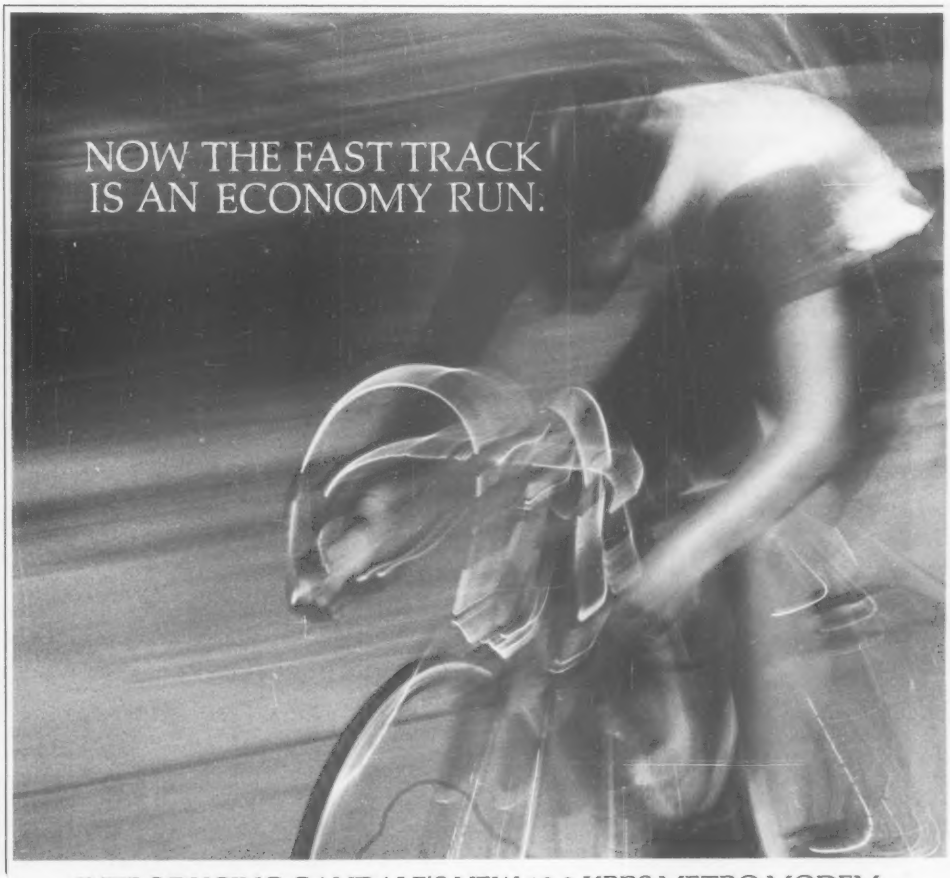
"We set up implementation teams to break down the barriers in different businesses," Tower says. "People are crossing boundaries between businesses to help each other."

Right now, the implementation teams are working in only a few of the 17 GE Canada businesses. As they build up expertise, they will move out to other companies and pass on their experience to new team members.

The presence of business users on the implementation teams, as well as in all the other major planning and governance bodies, is indicative of the kind of cohesion that GE Canada is seeking among its businesses and between the business function and the IS function.

As an illustration of how business employees are helping to advance the process of IS integration, Relph likes to tell of a GE group that wanted to buy some new computer-aided drafting and manufacturing equipment so it could use draftsmen to do some of the work engineers had done in the past. The first step, Relph says, was not buying the equipment and training the draftsmen — it was a matter of deciding on a way to do business in the future.

The group had to negotiate with union officials to get lay-off exclusions for the low-seniority draftsmen. They also had to break down the barriers that existed between engineers and draftsmen and rewrite job descriptions. Only when all of these nontechnical issues had been resolved, Relph says, was it reasonable to buy and install equipment. •



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When a nontechie takes over IS

The fear of technical disaster is overcome by a list of perceived benefits

BY ALAN RADDING

Consider the following scenario. While fictional, it could happen to you: *Duane Johnson worried about taking over as head of information systems. Two years ago, as executive vice-president of marketing, he had lashed out at the company's IS staff during a senior executive committee meeting. They were taking months to make a seemingly simple change to the way statements were calculated and printed for a new preferred-customer product, and they were charging him a fortune. A competitor was about to beat them to market with a similar product.*

In frustration, Johnson showed some printouts of exactly what he wanted, something he and one of his technically oriented staffers had done on a personal computer spreadsheet. "If a couple of nontechies with a PC can do this in a few days, why can't IS?" he queried.

The head of finance, to whom the IS manager reported, snapped back that he had checked the IS billing, and Johnson was not being gouged. That is what it cost. He would show the printouts to Davis in IS, but Johnson should remember that the mainframe is not a PC.

Now the company was going through a major restructuring, and the chief executive officer had tapped Johnson for an upgraded senior executive-level IS position in the department. Johnson and other users felt good about the change, but he kept thinking about the finance chief's comment that the mainframe is not a PC. What if he screws up? The entire organization rides on that mainframe.

Radding is a Newton, Mass.-based author specializing in business and technology.

These days, more and more nontechnical managers are filling top IS positions, creating a situation that raises a lot of questions — only one of which is, what happens if I make a disastrous systems decision? Other questions concern how IS will be treated in the competition for an organization's resources, how IS' role will change under nontechnical management and how IS fits into the traditional path to top management.

A technical disaster is the first possible consequence that comes to mind when nontechnical managers are placed in top IS positions, but that risk has not deterred companies from exercising the option, according to Bruce Rogow, executive vice-president at Gartner Group, Inc. in Stamford, Conn.

The movement of nontechnical people into top IS positions has been going on since about 1975, Rogow reports, despite technology nightmares attributable to bad IS decisions made by a poorly informed IS chief.

A number of companies are willing to take a chance on putting a nontechnical person in charge of IS. In a survey conducted by *CIO* magazine last summer, 26 of the top 100 chief information officers came from nontechnical backgrounds. Their experience levels covered the spectrum of corporate activity, including finance, marketing, corporate planning and general business management.

BLAIR THORNLEY

The movement of nontechnical people into top IS positions is often part of a larger movement of people throughout the entire organization. In large firms, there is a growing tendency to cultivate potential corporate officers by giving them the opportunity to gain experience in many areas important to the business.

"There is a conscious move to develop people with broader business experience," notes Patricia "Tosh" Barron, director of corporate information management at Xerox Corp. in Stamford. Not only are nontechnical managers being posted to IS, but engineers are moving into sales and marketing positions, and financial people are being rotated into manufacturing slots as well. Barron herself moved into her current position from marketing two years ago.

Executive movement within an organization "is an indication that companies realize that key staff need to get experience in other functional areas," says Douglas Ready, director of executive programs at the Boston University School of Management. The end result of this cross-training, ideally, is "functional integration and teamwork," he points out.

The trend is fueled by the recognition of "mutual dependency," Ready adds. Mutual dependency means that no department can properly function without the support of other departments. Line management

- **A corporate version of musical chairs**
- **Part of the changing perception of systems**
- **Do you know just enough to be dangerous?**

cannot function without IS, and IS has no reason to exist except to serve the line departments.

Broadening horizons

IBM is a classic example of a company that typically seeks to broaden the experiences of its rising executives. "It's fairly common for IBM to move people into different functions. I've had a number of assignments, but I've never before been in corporate [management]," says Larry Ford, vice-president/information and telecommunications, the top corporate IS post at IBM.

The arrival of executives such as Barron and Ford on the IS scene is "extremely significant for IS," says Michael Anderson, a director at DMR Group, Inc., a Toronto-based consulting firm. "It shows that IS is no longer perceived as a technological backyard. It is part of the mainstream business," he explains. Seen from this perspective, IS is now an accepted stop on the way to becoming CEO, some claim.

Others, however, see nothing at all new in the rise of nontechnical IS executives. They cite organizations that have considered the top IS post a nontechnical position for years.

San Francisco-based McKesson Corp. is an example of such an organization; the nation's largest drug distributor has a history of placing nontechnical people into the top IS slot. Jon d'Alessio, McKesson's vice-president of operations planning and information technologies, is a financial manager who replaced another nontechnical manager in the same position in April 1988. "We built strategic systems 15 years ago, and we've been using systems competitively ever since, so we had to make sure we had a good link to top management," he says.

To some, the use of nontechnical managers in top IS spots reflects an ongoing disdain by top management for highly technical people. "In the early days, [top management] lacked confidence in technical managers to be effective operating managers," Rogow says. More recently, he continues, the appointments of nontechnical IS managers reflect a lack of confidence in technical managers' ability to relate to senior corporate management and link technology with larger corporate concerns.

Xerox's Barron

In many cases, it is not necessarily the low-tech background that is appealing but the broader management skills and perspective that the general business manager brings. In some instances in which there is a nontechnical IS chief today, the next person holding that position could just as well be a technical person, if the person's skills and business perspective are right.

"I don't set a pattern at Xerox. There is no reason that an IS person can't have this job," Xerox's Barron says.

What is important at Xerox, McKesson and most other firms in which nontechnical people assume the top IS slot is the integration of IS with the organization's strategic mission. The person at the top is expected to straddle both worlds: top corporate management and systems. Of course, this is true when technical people assume the top IS position, too.

"Systems, per se, are never the strategy of the company," Barron says. At Xerox, technology enables the company to better pursue its strategy, she points out, so it needs someone in the top IS slot who sees technology as a means of achieving strategic objectives rather than as an end in itself.

Ford, who came to IS a year ago by way of marketing and international posts, approaches the IS field not as a technical discipline but as a critical function of the business, he explains. Placing a business manager rather than a technical manager in the top post, he continues, signifies

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the changed role of systems: The company has elevated IS to the same level as other major departments.

The exact impact of a nontechnical manager on IS and the organization cannot be precisely identified, but Anderson sees two areas in which effects show up quickly: The nontechnical manager gives IS more credibility with top management, and the nontechnical manager brings the entire department more into the corporate mainstream.

Barron sees herself as the IS advocate in the corporation. "I think I have more acceptance by top management," she says. In the past, a technical manager might have advocated the proper technology solution but was not adept at presenting it in terms of its impact on key business issues. Barron, whose previous assignments also included management consulting, believes she can be more effective: "I can articulate technology concerns about the directions of the business," she points out. "I come with communications skills."

IBM's Ford

Part of Ford's mission is to bring IBM's new corporate directions to the IS organization. "IBM is working to be more marketing driven," Ford explains. For corporate IS, that means more emphasis on its own customers. "My own personal experience has been to focus on customers. In IS, our customers have to be a major focus. I'm trying to strike a balance and make IS more responsive."

Disaster can strike

While the movement of nontechnical executives into IS makes sense from the corporate view, it raises serious issues from the IS perspective. Running IS is not the same as running an overseas subsidiary or other more conventional posts on the corporate career path.

For instance, if a series of bad decisions derails an overseas subsidiary or sets back an organization's marketing effort, the company stands to lose a lot of money, but it is unlikely that the firm's very existence would be jeopardized. Other parts of the company can continue to function normally. But if a mission-critical IS system suffers from poor systems decisions — say, a botched distributed processing strategy — then every function of the firm could suffer.

"There is the problem of understanding very complex technology. [Nontechnical managers] need good, credible sources of [technical] advice, or they can make a terrible mess," says Warren McFarlan, professor of business administration at Harvard Business School.

Harvard runs an executive IS program that tries to blend technology and management perspectives. "We teach at the intersection of technology and strategy," McFarlan explains. About half the students are technical managers trying to broaden their business perspectives, and half are nontechnical managers trying to fill in their technology perspectives.

"I do feel the lack of technical knowledge," says Barron, a graduate of the Harvard program. "I know enough to be dangerous, and I'm sure to make mistakes." When she is called on to make technical decisions, however, she relies heavily on her technical staff.

At IBM, Ford knows a lot about technology — for a nontechnical person. "I have the benefit of knowing our product line well," he says, "but I've needed to learn the application development process." When he needs technical backup, he turns to his own staff or to other sources of expertise within IBM.

To get his technical information, McKesson's d'Alessio goes to computer conferences and spends considerable time having his staff educate him. "My job is to ask the right questions," he

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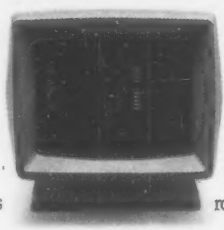

We provided the RTD with the capacity to handle more than 5,000 telephone requests a day for scheduling and information. Providing specific details on all 2,300 miles of routes at the touch of a button.

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says. Sometimes a nontechnical manager who is ignorant of IS dogma but asks challenging questions is enough to re-energize an IS department. The need to educate the nontechnical manager forces an IS staff to re-examine the accepted ways of doing things.

Not everyone, however, is comfortable with nontechnical people making crucial technical systems decisions. Although nontechnical managers can usually grasp enough of the technical aspects of IS to make proper decisions under normal circumstances, "it is much more difficult when technology is rapidly changing," Rogow points out.

Because of the highly technical underpinnings of IS, firms must be very careful about which nontechnical manager is placed in IS, warns Kavin Moody, who has been acting director of corporate information and technology at the Bank of Boston for the last four months. Moody is now considered a technical person, but he spent the first 10 years of his business career in nontechnical management. "You don't need to be a technical person, but you do need to appreciate technology and be analytical and logical," he says.

Moody compares a nontechnical manager running IS to the head coach of a football team. "You don't have to be a star football player to be head coach, but you really need to understand the game," he says. "It is not impossible to make a catastrophic decision, so you have to surround yourself with good [technical] people and know when to take their advice," Moody adds. "You're most capable of screwing things up if you don't listen, don't understand the issues and don't have good advisors."

Increasingly, the top IS person is not expected to wrestle with small technical details. Instead, his job is to establish priorities, broad policy and direction. "If we're talking about an infrastructure issue that has corporatewide implications, I get involved," IBM's Ford says. But if it is something very specific — for example, a question about an architecture for a particular application — Ford lets the technical staff resolve it.

The partnership approach

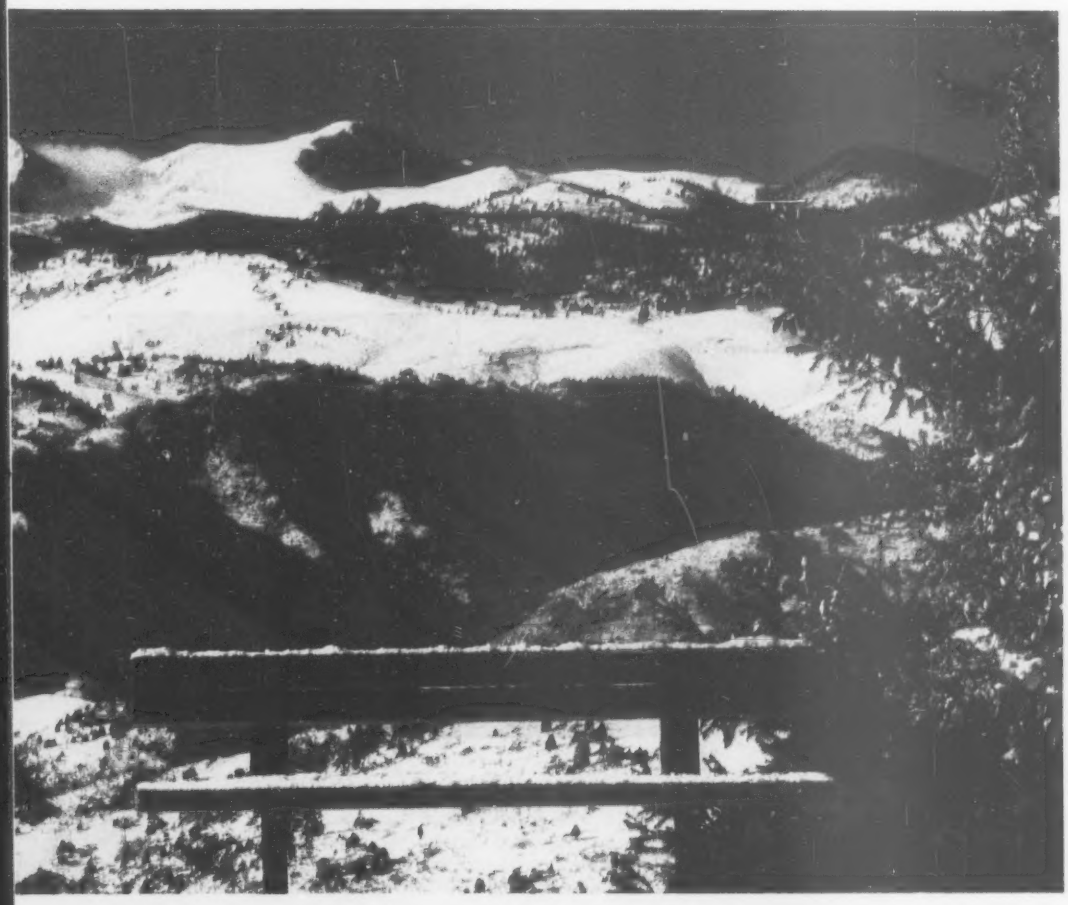
Systems have evolved to the point where you do not need a technical person, an engineer, in the top position, suggests William Synnott, director of the banking division at Nolan, Norton & Co. in Lexington, Mass., but it is difficult to strike the perfect balance between technical and managerial skills. "You need a planner, but can you plan right if you don't thoroughly understand the technology?" he asks.

Bank of Boston's Moody

The dual nature of IS, displaying both complex management and technical sides, calls for a new approach, Synnott says. "We're seeing a lot more partnering, the team concept," he explains. In an ideal IS partnering arrangement, the top position — the nontechnical one — deals with planning and policy, while the second position handles technical operations.

The growing number of nontechnical IS managers suggests that the emphasis is shifting from technical to business issues, but some still argue that the mission-critical nature of IS requires that a technical person be in charge to assure smooth technical operation.

Others counter that IS is too important to the business to be left in the hands of technicians and not managers. "If the computer goes, we're out of business in an hour," says d'Alessio. With so much at stake, nontechnical management must be deeply involved. Both sides are recognizing that there has to be a partnership combining the dual aspects of IS into a singularly effective organization. ●



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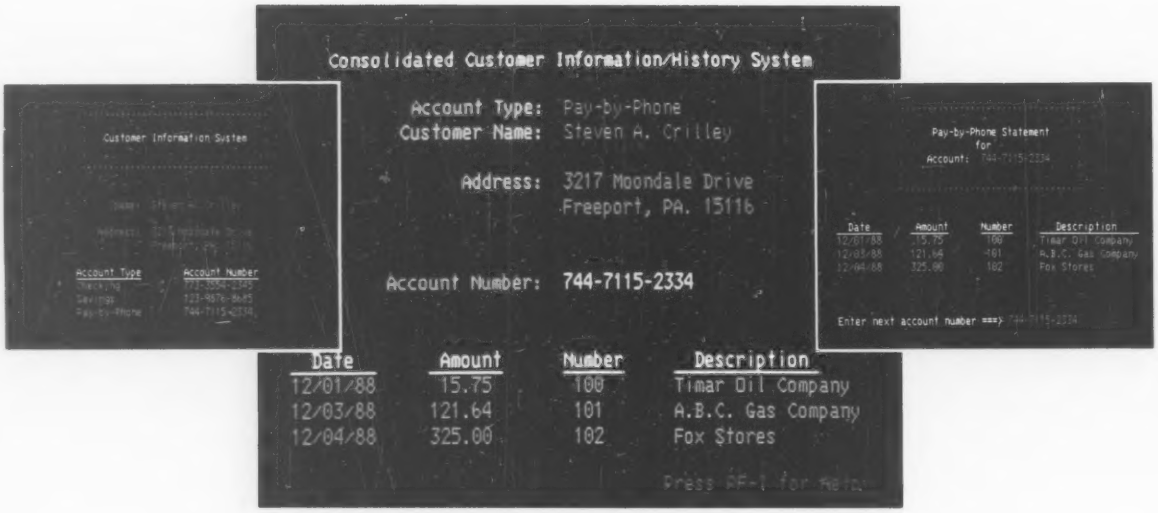

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INDUSTRY INSIGHT

J. A. Savage

Dunk the 'dough' nuts

"We don't care, we don't have to," cried bumper stickers in the waning days of the Nixon administration — as in "Ma Bell: We don't care, we don't have to."

You paid your money, but you didn't have much of a choice. Utilities kept jacking up rates. Mergers created corporate giants, which stumbled over consumers and squashed their own workers.

The public cried foul to Congress, and attempts were made, hesitatingly, to enforce antitrust laws. Corporations like IBM fought. IBM battled the Justice Department in antitrust litigation for a decade and finally won.

Feeding frenzy

But to keep a veneer of respectability, most held tight and waited until the specter of Japanese companies buying up indigenous industry was raised in 1983. Once Fujitsu, in its quest for Fairchild Semiconductor, was John Wayned out of Silicon Valley, electronics companies began to move. There was a minor feeding frenzy, with National Semiconductor buying Fairchild, IBM buying Rolm and, in 1987, Advanced Micro Devices merging with Monolithic Memories.

At the end of the Reagan years, the veneer of competition was left in shreds by government approval of and involvement in chip consortium Sematech. Not only did Congress approve of the country's largest semiconductor makers getting together in a manufacturing endeavor, but also the government was willing to fund it to the tune of $100 million per year.

This was, of course, after the companies underfunded their own efforts at manufacturing efficiencies.

Wearing nationalism like the capitalist crown jewel, Sematech forged the new exemption to U.S. antitrust laws; that is, "Anything goes." Instead of individual companies investing to keep ahead of the competition, little investment was made, and

Continued on page 80

Enjoying relative calm after the storm

BY NELL MARGOLIS
CW STAFF

Sometimes no news is good news; for the computer industry, the financial quarter ended in June might have been one of those times. "I'm not expecting any big surprises, and you know that last quarter there were some *big* surprises," said Scott Smith, an analyst at Donaldson Lufkin & Jenrette. "This looks like a pretty solid quarter, generally speaking."

After a harrowing first quarter, marked by week after week of earnings shockers from computer companies, the relative calm of the spring quarter comes as a welcome relief to customers, companies and commentators alike, according to analysts (see story, page 76). However, they pointed out, the underlying industry trends have not altered significantly.

For instance, as in the past two quarters, most analysts pointed to strong new product cycles as the pivotal difference between a mediocre or disappointing quarter and something to write Wall Street about.

Intel Corp., for example, essentially hovered as it geared up to ship the 80486. "New product will be the whole story for Intel in the coming year," said Drew Peck, an analyst at Donaldson Lufkin & Jenrette.

Tug-of-control

Analysts agreed that the escalating emphasis on timely new products being key to a company's quarterly fate underscores the continuing shift of control from vendors to users.

Another note from the previous quarter that echoed through this period as well was the depressing effect of the strong U.S. dollar, particularly on the bottom lines of many computer companies that have brought their overseas operations into increasing prominence over the past several years.

The ironic coincidence manifested itself in a new section featured with increasing frequency in computer industry earnings reports: the section in which a company executive either blames currency differentials for disappointing revenue figures or emphasizes that the company did as well as it did despite adverse currency translation.

1989 second-quarter earnings

No rude shocks or stellar strides reported this time around

	Revenue April through June (in millions)	Percent change from 1988	Net income April through June (in millions)	Percent change from 1988
Apple	$1.2B	26%	$96	5%
Intel[1]	$747	3%	$99	(24%)[2]
Legent	$31.3	37%	$6.9	74%
Lotus	$132.2	8%	$10.3	(40%)
MCI[3]	$1.6B	31%	$142	129%
NCR	$1.5B	2%	$1.1	(2%)
Network Equipment Technologies	$41.8	38%	$4.8	37%
Seagate	$370	4%	$24	12%
Sequent[4]	$31.2	82%	$3.5	150%
Tandem	$420	24%	$30.8	78%

[1]Includes $17 million to cover costs associated with Livermore, Calif., plant closing
[2]Parentheses indicate decrease or loss
[3]Includes pretax gain of $9 million from previously negotiated antitrust settlements
[4]Includes an extraordinary credit from net operating loss carryforwards

CW CHART

Perot may be cited for contempt

More fuel added to fire as EDS hauls its founder back to court

BY MITCH BETTS
CW STAFF

FAIRFAX, Va. — Electronic Data Systems Corp. (EDS) appears to be getting the upper hand in its ongoing court battle with EDS founder H. Ross Perot. Earlier this month, a Virginia judge ordered Perot's new company to show cause why it should not be held in contempt of court.

EDS had charged that Perot Systems Corp., a systems integrator based in Vienna, Va., on at least three occasions violated a court injunction prohibiting the company from soliciting or performing any work before Dec. 1 that "contemplates or calls for any profitable return at any point in time."

At a July 14 hearing, Circuit Court Judge William G. Plummer agreed that there was evidence that Perot violated the injunction.

Plummer also ordered Perot Systems to present a copy of the injunction to all prospective customers with whom the organization negotiates for business.

No comment

Perot, a Texas billionaire and legendary computer executive, was traveling and could not be reached for comment.

The feud centers on the agreement Perot signed when he left EDS in 1986. The $700 million buyout contract prevented Perot from competing with EDS for three years, but Perot and EDS disagreed about whether Perot could convert his nonprofit contracts into profit-making ones after Dec. 1.

After some confusion on the issue, the judge issued the restrictive injunction against Perot on April 13.

IBM continues Sugar Daddy role, buying into AMS future

BY MITCH BETTS
CW STAFF

ARLINGTON, Va. — IBM last week acquired a 10% stake in American Management Systems, Inc. (AMS), a systems integrator and vendor of applications software in the financial and government markets.

The deal — the latest in a series of IBM investments in software firms — involved the purchase of $18 million in AMS stock. IBM may increase its stake by an additional 10% by purchasing stock on the open market, according to the agreement.

"IBM is interested in building stronger ties to independent software and services companies so it can offer their services under systems-integration contracts," said Cato D. Carpenter, an analyst at Alex Brown & Sons, Inc. in Baltimore.

AMS, headquartered in this suburb of Washington, D.C., had 1988 revenue of $213 million. The company typically offers generic applications packages, such as credit-management software for banks and tax-collection software for government agencies, and then tailors them to individual customers.

IBM and AMS also announced a multiyear agreement under which AMS will develop applications software to run on IBM hardware, initially for the financial services industry. AMS already is an IBM Business Partner for marketing hardware and software in that industry.

For AMS, the deal represents an opportunity to seal an even closer relationship with IBM. "Our financial services clients most often want solutions that run on IBM systems," noted AMS Vice-Chairman Patrick W. Gross, in a statement.

"The opportunity to work more closely with IBM is too tantalizing to pass up," Carpenter said. "They'd rather be insiders than outsiders."

In addition, the cash infusion comes at an ideal time for AMS, which recently recorded its first quarterly loss in seven years because of unexpected costs and lower than expected revenue from contracts with the U.S. Department of Defense.

The firm, founded in 1970 by five Pentagon "whiz kids" who were experts in systems analysis and management, has grown at a yearly rate of 20%.

Inside

- Relational Technology says it will try even harder to get ahead. Page 76.
- The computer industry isn't quite out of the woods yet. Page 76.
- Comdisco spins off computer remarketing service subsidiary. Page 76.

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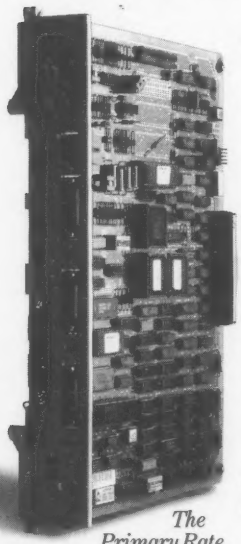

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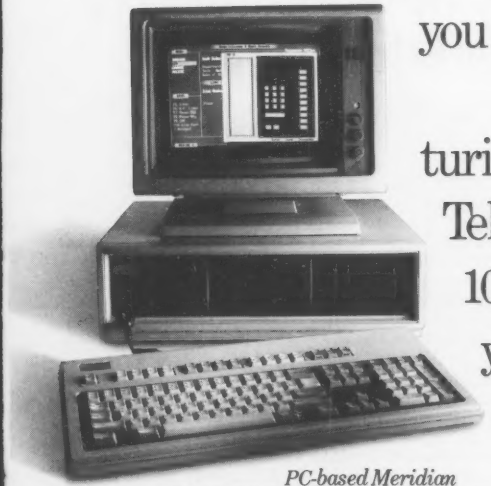

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RTI shuffles into No. 2 spot

ANALYSIS

BY JEAN S. BOZMAN
and AMY CORTESE
CW STAFF

ALAMEDA, Calif. — Relational Technology, Inc.'s (RTI) revamped management team, which went into place July 1, is trying to be the relational database management system industry's Avis to Oracle Corp.'s Hertz.

"We've risen to be the clear No. 2 in a field of four or five," said Christopher Greendale, the newly named vice-president of marketing. "How we differentiate ourselves from No. 1, Oracle, that's the way I'd like to be judged one year from now." Greendale, 37, says RTI needs to make more "noise" about its products so that users can more easily compare them with Oracle's product line.

Greendale, a former Comshare, Inc. executive who was president of Marae Groupware, Inc., in Ann Arbor, Mich., replaced Robert Healy, who had been RTI's marketing vice-president for 18 months and is now on special assignment for RTI. At the same time, RTI asked Marty Sprinzen, RTI vice-president of engineering, to manage the International Operations division — and promoted Marilyn Bohl, vice-president of product development, into Sprinzen's former post.

Chief Executive Officer Paul Newton said the July management changes were aimed at speeding the company's growth. Newton would like to see international sales, now pegged at approximately 40%, grow to more than 50% of corporate revenue by the early 1990s.

On the product side, Bohl — who was instrumental in designing IBM's DB2 relational DBMS — will attempt to ensure RTI compatibility with IBM DBMS products. RTI's Ingres already has gateways into IBM's IMS and DB2 databases.

In an interview last week, Bohl stressed the importance of imposing more structure on RTI's software development cycle.

That, she said, will become increasingly important to ensure timely releases for RTI products as the firm grows beyond last year's $87 million in revenue into a $100 million-plus company.

RTI's Greendale *wants to make more 'noise'*

A year after declaring itself a marketing organization, RTI's metamorphosis has not been readily apparent. Known for its excellent technology, RTI has repeatedly been outshined by archrival and marketer par excellence Oracle.

Also, two agreements with Digital Equipment Corp., partnering the Ingres DBMS and tool technology with DEC's VAX tools and an Ultrix DBMS, have backfired, according to Anthony Percy, an analyst at Stamford, Conn.-based Gartner Group, Inc. The "multiple images" have confused RTI's identity, he said, causing people to ask, "Is RTI a tools or a database company?"

Last October, RTI entered into what was billed as an exclusive agreement with DEC, under which the companies would jointly market Ingres tools for the VAX, and both sales forces would receive commission for the sales. At the announcement, both companies talked about the "cultural match" between them.

RTI hardly had time to bask in the endorsement when DEC signed an agreement with Cullinet Software, Inc. for its VAX tools, at which announcement a DEC senior vice-president denied having an exclusive agreement with RTI. DEC explained the apparent contradiction by stating that the RTI agreement was between DEC's database group and RTI but did not bind the DEC corporate division, whose policy is not to enter into exclusive agreements.

Less than a year later, RTI struck another agreement with DEC, this time to license to DEC the Ingres database technology, RTI's bread and butter. The deal was announced by DEC, without mention of RTI — turning an apparent RTI coup into a marketing fiasco and leaving many to wonder whether RTI had sold its soul, said Gartner Group analyst Mark Finley.

Industry not quite out of the woods

BY RICHARD PASTORE
CW STAFF

The computer industry may have made it to Grandma's house relatively unharmed this quarter, but the wolf is still lurking outside, looking for a way in.

Apple Computer, Inc. reported a fair revenue hike but slim profit growth compared with last year's levels. "It was a pretty solid report in many respects — gross margins rebounded sharply by about 3%, and operating expense as a part of sales fell 2%, said John Rossi, an analyst at Alex Brown & Sons.

"The alarming thing was the slowdown in sales" over the previous quarter, which Rossi said he expects to continue for the likes of Apple and **Compaq Computer Corp.** "Unit volume growth will still be rather encouraging but at a slower rate than the last two years," he said. Analysts added that the slowdown should continue through the end of the calendar year.

After a torturous labor, **Lotus Development Corp.** finally bore 1-2-3 Release 3.0 and sent out improved revenue by way of announcement.

"I think they've set themselves a very positive constructive platform for the future," said David Bayer, an analyst at Montgomery Securities.

The delivery took its toll on Lotus' spring quarter, however — witness a dip in margins. "It's been very expensive for them to maintain market share in a period in which they didn't have 1-2-3 Release 3.0 available," Bayer said.

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Software companies as a whole appear to be reporting a soft quarter, according to Bayer. "But a few companies are standing out because of good product cycles — that is the key differentiating factor," Bayer said. He noted that **Microsoft Corp.** is expected to report better-than-anticipated numbers, spurred by new versions of Microsoft Word and other products.

Other software makers that fared well include **Software Publishing Corp.**, which added several points to its solid batting average, and systems integrator **Legent Corp.**, whose solid first complete quarter in its newly merged state backed analysts' and users' early bets that Duquesne Systems, Inc. and Morino, Inc. would be a winning team.

The semiconductor sector, with **Intel Corp.** showing the way with a 24% drop in income, appeared a victim of miserly inventory management on the part of its customers. Computer firms worried about a recession are not building chip inventories, according to Drew Peck, an analyst at Donaldson Lufkin & Jenrette.

"All semiconductor companies are saddled with inventory normally carried by their customers," Peck said. "Furthermore, expectations for the third quarter are mixed at best because customers don't feel like taking on any inventory now."

NCR Corp. reported profit and revenue growth of only 2%. Montgomery Securities analyst John Jones said the management at NCR "has a lot of restructuring to do; their products aren't competing right now."

On-line transaction processing (OLTP) players **Tandem Computers, Inc.** and **Sequent Computer Systems, Inc.** reported robust growth for the quarter. Apparently, the public's increasing appetite for OLTP is fattening the vendors as well.

Storage products companies **Seagate Technology, Inc.** and **Maxtor Corp.** logged moderate profit growth for the second quarter. But **Iomega Corp.** took a tumble while taking steps to repurchase up to one million shares of its common stock.

"Telecommunications companies are doing great," said Dale Kutnick, president of Meta Group, Inc., a market research firm in Westport, Conn. **MCI Communications Corp.** and **Network Equipment Technologies, Inc.**, for instance, both checked in with hearty reports. "There clearly seems to be price demand and elasticity in this market."

Comdisco begets high-tech remarketing subsidiary

BY ELLIS BOOKER
CW STAFF

ROSEMONT, Ill. — Comdisco, Inc., the industry's largest independent remarketer and lessor of computer and high-technology gear, earlier this month created a subsidiary to manage and remarket high-technology assets for third parties.

The new entity, dubbed Comdisco Portfolio Asset Management, Inc. (COPAM), will manage, administer, liquidate, replace or refinance a company's high-tech capital assets for public and private companies, as well as other equipment leasing firms. Analysts said they were somewhat surprised by the announcement, noting that Comdisco itself already offers many of these services.

"They're in that business today. Lessors now wholesale to other lessors ... it's normal practice," said Thomas J. Donovan, director of investment banking at IDC Financial Services Corp. subsidiary Technology Investment Corp. in Framingham, Mass.

Donovan speculated, however, that the new subsidiary might be used as a vehicle to acquire the assets of CIS Corp. in Syracuse, N.Y., the industry's No. 2 lessor, which went into Chapter 11 bankruptcy in January and which Comdisco was said to be inspecting.

"We have made a bid for some of their computer portfolio," confirmed Comdisco spokesman James Hyland. But he said the bid, which was submitted several weeks ago, proposes only to make Comdisco an agent for remarketing CIS assets. "Certainly, the new company could be a vehicle for this," Hyland added.

Among other bidders for CIS is an investor group spearheaded by computer industry legend Harold Geneen [CW, July 10].

In a separate announcement earlier this month, Comdisco told investors that it expects net earnings this year of $105 million to $110 million; revenue is expected to top $1.6 billion for the fiscal year ending Sept. 30. Last year, Comdisco posted earnings of $92 million on revenue of $1.3 billion.

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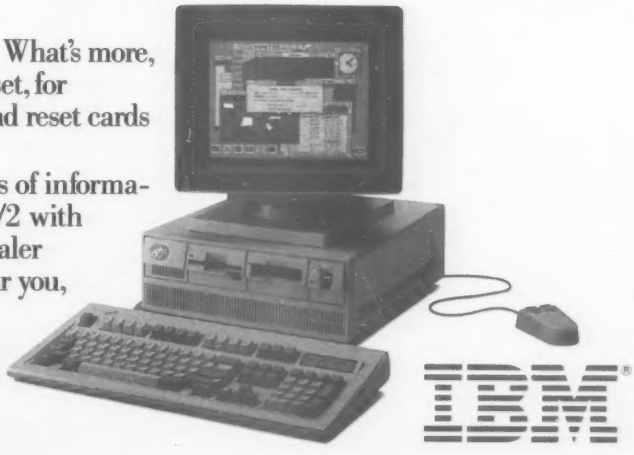

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Savage

FROM PAGE 73

they all fell behind, so antitrust regulations had to be ignored in order to save the indigenous semiconductor industry.

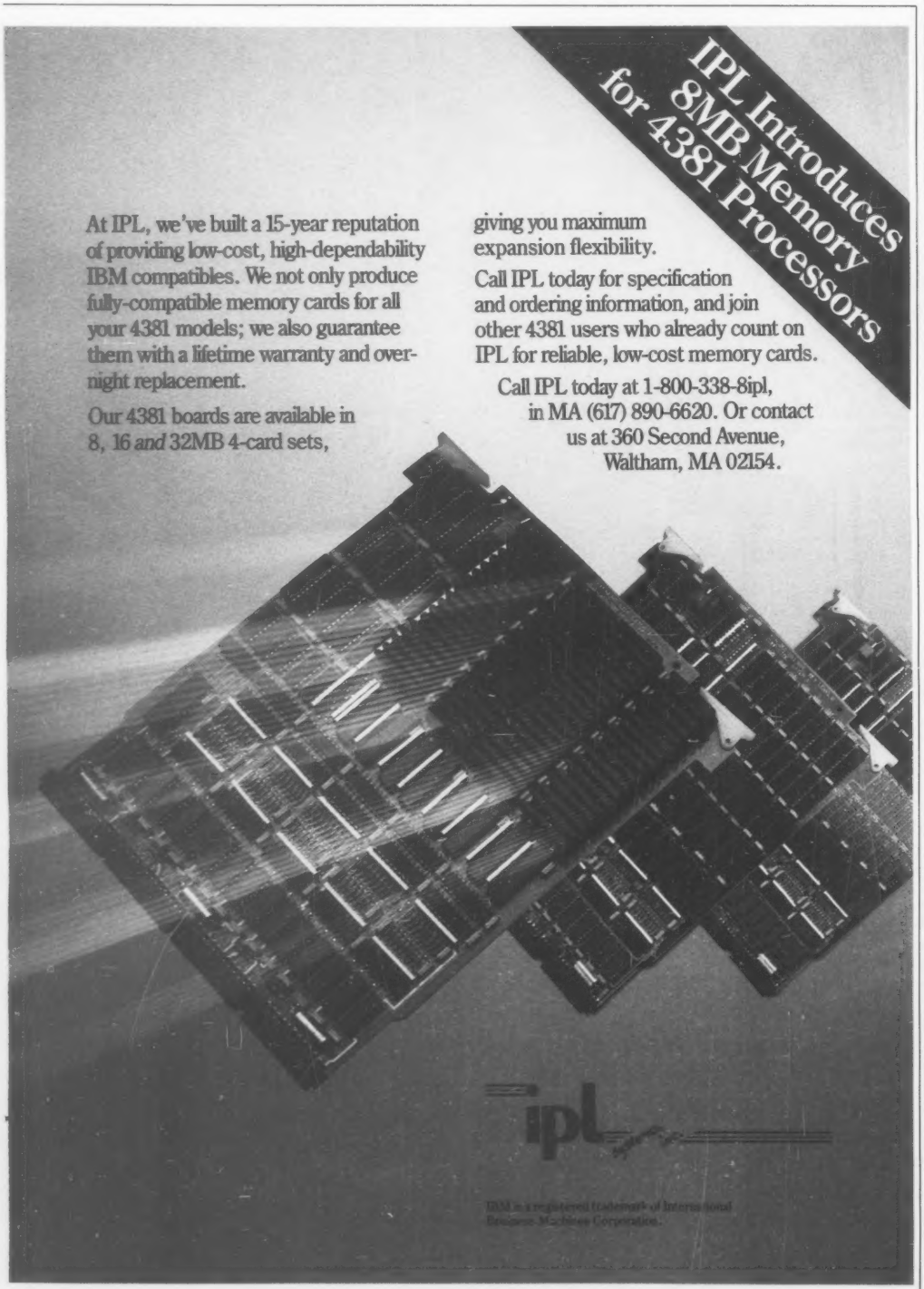
With Sematech now firmly rooted and with no opposition from the Bush administration, other for-profit consortiums are springing up almost as fast as McDonald's franchises.

Instead of protecting consumers by curbing the potential for price fixing, Congressmen such as Rep. Edward Markey (D-Mass.) are taking a renewed interest in selectively repealing antitrust laws. There are calls for trade barriers to shut out international competition, which sometimes functions to keep the consortiums honest.

Executives are flush with new possibilities in the post-conglomophobia era. Not only are chip consortiums such as Sematech and the recently formed U.S. Memories a reality, but computer companies have formed a lobby to ensure that their new freedoms continue.

Things may be good for those running business from the top, but consumers should worry. With cooperation between competitors, there is less chance for a consumer, no matter how big, to influence vendors. And the specter of price fixing always hovers when those who should be rivals are meeting behind closed doors.

Savage is a *Computerworld* West Coast senior correspondent.



IN BRIEF

Try, try again

Billerica, Mass. workstation maker **Adage, Inc.** last week announced plans to merge with West Chester, Pa.-based **General Business Investment Corporation (GBIC)**, which offers manufacturing, real estate and financial services operations. GBIC and its affiliates currently hold close to 20% of the Massachusetts vendor, which recently went halfway down the corporate aisle with **Multiflow, Inc.** but never made it to the altar.

.....

Buying back

Apple Computer, Inc.'s effort to divest itself of its 3,423,792-share stake in desktop publishing software player **Adobe Systems, Inc.** — all the better to compete with you, my dear — had no trouble turning up at least one eager buyer. **Adobe** announced its intent to buy up 300,000, or approximately $7.2 million worth, of the shares. The repurchase, according to Adobe, may work to the advantage of employee benefit plans.

.....

Backing off

Unfavorable conditions in the technology sector of the stock market were cited as the reason behind **Storage Technology, Inc.**'s mid-July withdrawal of its proposed convertible stock and debentures offering. The company, which was going to use the proceeds of the recently withdrawn offerings to redeem some senior debentures, has not given up the end — only any immediate means, according to a spokesman.

.....

New kid on the block

Atlanta-based **Microbilt Corp.**, purveyor of application-specification communications systems to industries that serve multiple remote sites, is about to become a wholly owned subsidiary of **H & R Block, Inc.** The approximately $144 million deal will join Microbilt's resources with those of Block's burgeoning **Compuserve, Inc.** communications empire.

Turn and face the changes

IS executives must learn the ways of competition to make it in the 1990s

BY TED FREISER
SPECIAL TO CW

Today's information systems executives face a growing opportunity to fail. More and more, each of their undertakings will be either a clear success or a distinct failure. This trend stems from the increasingly complex challenges IS executives confront in the face of growing sophistication and greater expectations on the part of both end users and top management.

As a result, IS executives must position themselves today for major changes in both technology and management that will alter how people work and how companies serve their customers. As management consultants who have worked with major corporations for 35 years, it is our view that the primary cause of failure among IS executives is their lack of response to major change.

Most of us have known people who worked very hard — and very effectively — at doing what used to be appropriate and fought anyone who wanted to change their tactics. These people may believe they are acting in their corporation's best interest, but they do not recognize signs of change, do not think the change will last or do not believe that it will affect their company.

Today there are numerous changes underway in the technological realm to which IS executives must adapt. They include the following:

- The continuing price/performance advantage of smaller processors.
- Distributed system software that supports remote data access and processing.
- Standardization and interoperability within Unix and through bridges between Unix and IBM's Systems Application Architecture that will support distributed applications.
- Improved interface technologies such as voice recognition and response and image processing. Voice recognition and response is in use today on the shop floor, in banks and for insurance claims handling.
- Greater remote storage with compact disk/read-only memory.

These changes will drive dramatic increases in the number of computer system users and their information needs. They will also facilitate user control over how to meet those needs. These developments will in turn place additional pressure on IS managers to deliver innovative services.

There are also many changes under way in the management of IS organizations to which IS executives must respond, including the following shifts:

- From productivity to quality — in other words, getting it right the first time.
- From cost centers to profit centers.
- From standardization to customization.

Diebold's Freiser *warns against IS foot-dragging*

- From designing applications to managing information.
- From a particular computer configuration and migration path to a flexible platform.

So what are chief information officers doing now to ensure their success in this changing environment?

For starters, they are fundamentally changing their orientation in two ways. They are moving from an aversion to risk to an acceptance of risk as a necessary part of their job.

CIOs also are shifting from a strategy that emphasizes control to one that stresses added value — services that make good business sense.

As a result, IS executives are providing services that compete with outside suppliers. They are charging clients for services rendered rather than allocating costs and offering service-level agreements — standards of performance that let customers clearly see whether they are getting what they are paying for.

Business focus

A second move successful CIOs are making is to develop an IS staff that focuses on results rather than on processes. Successful CIOs redirect their staff members from an emphasis on the right way of doing things to solving business problems. Their people are completely committed to doing what makes business sense. A conversion to a technically superior product, for example, would not make sense if the managerial costs outweigh the technical benefits.

A third initiative is planning for change. Successful CIOs realize that locking into a fixed, long-range IS plan does not make sense in the face of today's global competition, deregulation, takeovers, leveraged buyouts and uncertain economic environment.

Long-range business plans do not last long. Instead of getting caught up in one, CIOs should concentrate on the following:

- Developing shorter range IS plans within the long-range strategy.
- Devising an implementation program.
- Continually monitoring and interpreting changes in business conditions to identify the ones that will influence their previous assumptions.
- Adapting strategies and plans based on the changes and reporting these modifications to management and end users.

Sharper competition

Finally, successful CIOs are becoming more competitive. Rather than waiting to be asked to deliver products and services, they are becoming more marketing-oriented and taking other steps to make their services more attractive to users who might otherwise go it alone with a personal computer or buy a stand-alone system.

Once they are competitive in-house, these CIOs are ready to go out and sell their services to end users, offering terms a business person can understand as well as independently validated comparisions with competing services and prices.

These four actions are not expensive, but they take time and determination. Now is the time for tomorrow's winners to start pursuing them if they are not already doing so.

Freiser is president of consulting firm John Diebold & Associates in New York.

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Max Steiner remembers his days as a salesman, when he would make calls and, invariably, see a copy of *Computerworld* on the desks of his clients. That alone made an impression on Max.

Today, he is Director of Marketing for Kenda Systems, a software services firm with offices in New England, New York and Washington, DC, and specializing in placing contract engineers within the high-tech industry. Having grown by 400 percent annually for the last three years — and having placed several hundred professionals in less than three years, Kenda Systems is an acknowledged leader in the industry.

The impression that *Computerworld* has made on Max early on has been a lasting one. He directs Kenda's advertising. And he directs it to *Computerworld*.

"We are looking for national exposure. First, we want to make people aware of Kenda Systems and then increase the number of resumes sent to us. I believe that greater recognition will lead to greater interest — and understanding of what we can do for people.

"It only follows that we can best accomplish our goals by advertising with the industry leader — it answers all our needs. Computerworld *reaches the qualified software professionals we're looking for.*

"And we have the proof. We've seen as much as a 30 percent increase in resumes coming into our offices. Plus we're getting everything we hoped for: national recognition and responses from top people from all over the country. Clearly, we're quite pleased with the results.

"We're hearing from software engineers who are impressed with the fact that Kenda's in Computerworld. *The bottom line is results. What I'm seeing, thanks to* Computerworld, *is beyond our expectations."*

Computerworld. We're helping serious employers and qualified information systems, communications and PC professionals get together in the computer community. Every week. Just ask Max Steiner. For all the facts on how Computerworld can put you in touch with qualified personnel, call your local Computerworld Recruitment Advertising Sales representative today.

Weekly. Regional. National. And it works.

BOSTON: 375 Cochituate Road, Box 9171, Framingham, MA 01701-9171 (508) 879-0700.

NEW YORK: Paramus Plaza I, 140 Route 17 North, Paramus, NJ 07652 (201) 967-1350

WASHINGTON, D.C.: 8304 Professional Hill Drive, Fairfax, VA 22031 (703) 573-4115

CHICAGO: 10400 West Higgins Road, Suite 300, Rosemont, IL 60018 (312) 827-4433

LOS ANGELES: 18004 Sky Park Circle, Suite 100,
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Computer Task Group, the nation's leader in software development and systems integration, has been attracting a lot of attention with its stable growth patterns and dynamic technology. Even industry giant IBM has recognized our proven potential and has invested in us.

You, too, can invest in CTG...with your future. We have positions available for **PROGRAMMERS/ANALYSTS** that would be a good career "investment" for any dynamic, forward-thinking professional. We currently have positions available in our **Carolina** and **Virgina offices** for individuals who possess **1+ years experience with Cullinet's IDMS** . CTG can provide a stable alternative to the turmoil of acquisition and mergers.

Each year we invest over $6 million in our corporate and local educational facilities to keep you , and us, on the leading edge of technological developments. In addition, we offer an excellent salary and benefits package. Travel opportunities are available , but not guaranteed.

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CTG

COMPUTER CAREERS NETWORK

Now you can reach the qualified computer professionals you're looking for with Computer Careers Network.

Every week, the new IDG Communications Computer Careers Network of five leading computer and communications newspapers delivers your recruitment advertising to an audience of highly qualified computer and communications professionals. When you put the proven, weekly authority of Computerworld and specialized readerships of InfoWorld, Network World, Digital News, Federal Computer Week to work for you, you get the best chance ever to target the qualified professionals you need to reach.

Sales Offices: John Corrigan, Classified Advertising Director, 508-879-0700;

BOSTON: Nancy Percival; Andrew Rowe, 800-343-6474. (In Mass. 508-879-0700);

NEW YORK: Warren Kolber, 201-967-1350; Jay Novack, 800-343-6474.

WASHINGTON, D.C.: Katie Kress, 703-573-4115; Pauline Smith, 800-343-6474.

CHICAGO: Patricia Powers, 312-827-4433; Ellen Casey, 800-343-6474.

LOS ANGELES: Barbara Murphy, 714-250-0164; Chris Glenn, 800-343-6474.

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- **IDMS ADS/O COBOL**
- **IMS DB/DC COBOL**
- **DB2**
- **CICS CL COBOL**
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It's the efficient way to recruit qualified computer professionals.

Now you can target your recruitment advertising to the qualified computer professionals you want to reach - where you want to reach them. All you need is the new IDG Communications Computer Careers Network. Here's how it can work for you:

You choose the newspapers. Depending on who you're looking for, you can select the combination of five newspapers that best suits your needs - **Computerworld, InfoWorld, Network World, Digital News, Federal Computer Week.**

You choose the region. If you wish to recruit within a specific area, you can advertise in the regional editions of the newspapers you choose - East, West, or Midwest. Of course, national buys of individual newspapers or various combinations are also available when you need to extend your reach.

You don't pay for readers you don't want. Gone are the days when you have to worry about paying for waste circulation. The Computer Careers Network puts you in touch with qualified computer professionals - and only those qualified computer professionals you need to reach.

To put the new Computer Careers Network to work for you - regionally or nationally - call the sales office nearest you. Or contact John Corrigan, Classified Advertising Director, at 508-879-0700.

Sales Offices:

BOSTON: 375 Cochituate Road, Box 9171, Framingham, MA 01701-9171, (508) 879-0700;

NEW YORK: Paramus Plaza I, 140 Route 17 North, Paramus, NJ 07652, (201) 967-1350;

WASHINGTON: 8304 Professional Hill Drive, Fairfax, VA 22031, (703) 573-4115;

CHICAGO: 10400 West Higgins Road, Suite 300, Rosemont, IL 60018, (312) 827-4433;

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Currently recruiting experienced computer pros with background in any of the following: IBM Cobol mainframe applications; CICS; IDMS; IMS; ADS/O; ORACLE; DB2; ADR DATACOM; Adabas; Natural; UNIX; SAS; VM/CMS; S/38 RPGIII or COBOL; AS400; DEC VAX COBOL or FORTRAN; PICK O.S.; Financial; Mfg.; MRPII; Banking; Insurance; MVS, VM, NCP, VTAM or CICS Systems Progrs; DEC VAX Systems Mgrs; Database Analysts. Partial listing of local, regional & nat'l fee paid positions. Call or write:

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3924 Browning Pl., Suite 7
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(919) 782-3024

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Progmrs, Prog./Analysts, Engrs

We Pay 80% of Bill Rate or $25/hr. Minimum

Mid-West consulting firm has immediate needs; 3-5 yrs experience minimum rqrd.

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- PACBASE
- IMS DB/DC, CICS, IDMS
- HP 3000
- ADA

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St. Louis, MO 63043
(314) 434-1976

CONTRACT POSITIONS

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ORACLE - PC - LAN - DB2 - IBM PC IBM LAN - VS - VIEWSTAR
IDMS DB/DC - ADSO

Call/send resume and references:

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(713) 686-9740

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Or CMAS or DMAS

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President

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We provide Fortune 500 companies with consulting and programming services. We have immediate positions available for **Programmers** and **Analysts** in **Kentucky, Ohio, Indiana,** and **Tennessee** with one of the following skills.

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The qualified individual will be responsible for programming our Tandem Super mini computers. You will code, design, maintain and implement software systems in a real time, multi node transaction, processing environment. 3 years of TAL programming experience is a must. PATHWAY, ENSCRIBE and Data Communications experience a plus.

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The qualified individual will be responsible for developing, analyzing and designing financial software products. We seek a minimum of 5 years Cobol Tandem experience, with applications development experience a must. A BS degree is required.

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The qualified applicant will be responsible for SYSGENs, system tuning and balancing, data base maintenance, capacity planning and system installation and troubleshooting. We seek candidates with a minimum of 5 years experience in a Tandem, Pathway environment.

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AiC wants to hear from you. Among the many rewards we can offer you are: competitive salary plus paid overtime; medical, dental, life and disability insurance; 401(K) savings plan; stock purchase option; tuition reimbursement; and a variety of projects and opportunities. For more information, call Carol Lee at 1-800-328-9929 or send your resume to her at: Analysts International Corporation, Dept. C234, 7615 Metro Blvd., Minneapolis, MN 55435.

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Equal Opportunity Employer M/F/H

HEAD OF COMPUTER DIVISION

Princeton University's Plasma Physics Laboratory, a leading high technology research and development facility, currently has an opening for the Head of its Computer Division.

This position will be responsible for directing and managing an organization of approximately 80 computer professionals involved in both the installation and adaptation of scientific state-of-the-art hardware and software.

Prior "hands-on" experience within both a time-sharing and a process control environment is highly desirable. Must also have in-depth knowledge of the operation and design of data aquisition systems. Candidates being considered for this function will have a thorough understanding of DEC, SEL and IBM Computer and their overall application within a research and development setting. Knowledge of CAMAC computer interface is highly desirable. This position will be respondsibly for interfacing with senior research physicists and mathematical research staff working at the frontier of experimental theoretical research in controlled nuclear fusion.

Minimum requirements for the position are 10-15 years experience in computer control and data processing systems along with extensive experience managing major projects. A B.S. degree in Electrical Engineering, Computer Science or equivalent is essential, having advanced degrees is highly dersirable.

We offer a competitive salary fully commensurate with experience and a comprehensive benefits program.

Please submit detailed resume to Mr. B. Cohen, Plasma Physics Laboratory, P.O. Box 451, Princeton, N.J. 08543 No phone calls please.

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It's the IDG Communications Computer Careers Network, and it lets you run the most targeted and cost-efficient recruitment program possible.

Its many options help you recruit qualified computer and communications professionals - regionally or nationally - with combination buys of up to five leading newspapers. And all together, the Computer Careers Network delivers your message to an audience of well over 1 million qualified computer professionals.

Look at what the Computer Careers Network lets you do:

Customize your recruitment program. The Network's five newspapers - *Computerworld, InfoWorld, Network World, Digital News,* and *Federal Computer Week* editions - let you tailor your recruitment program to your specific needs. You can buy as many as five newspapers with add-on options. That way you can recruit from the combination of computer and communications professionals that's best for you.

Target your ad placement. You can place your advertising exactly where you want. If you wish to recruit within a specific area, you can advertise in the regional editions of the newspapers you choose - East, West, or Midwest. Or you can extend your reach by running in two regions - or even nationally. Plus - you can still take advantage of standalone national rates for individual newspapers.

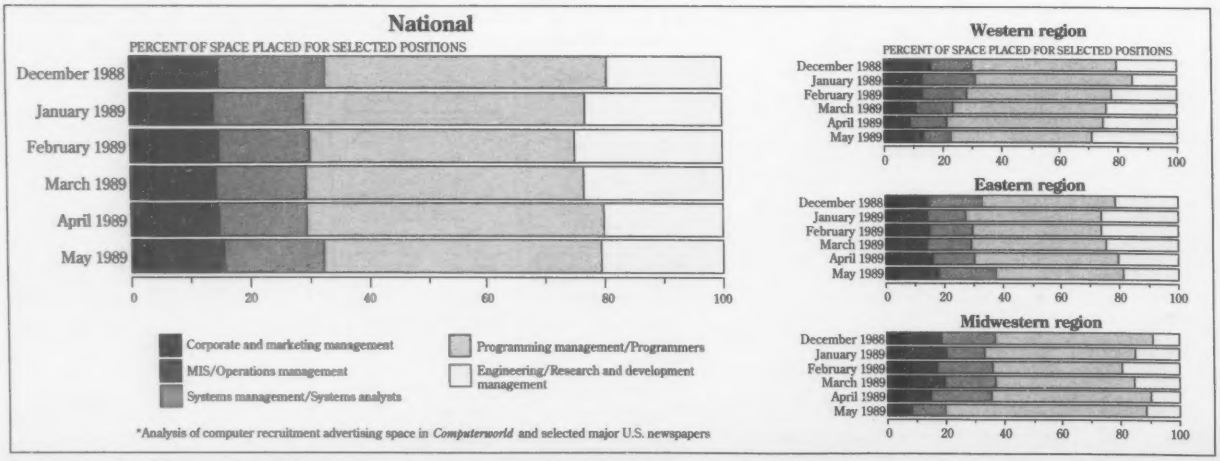
Reach qualified professionals cost efficiently. Gone are the days when you have to worry about paying for waste circulation. The Computer Careers Network lets you buy the combination of newspapers that will deliver your recruitment message to qualified computer and communications professionals - and only those qualified professionals you need to reach.

To put the new Computer Careers Network to work for you - regionally or nationally - call the sales office nearest you, or contact **John Corrigan**, Classified Advertising Director, at 508-879-0700 ext 676.

One quick phone call can give you all the information you need to run your recruitment advertising in up to five leading industry newspapers.

CAREER INDEX

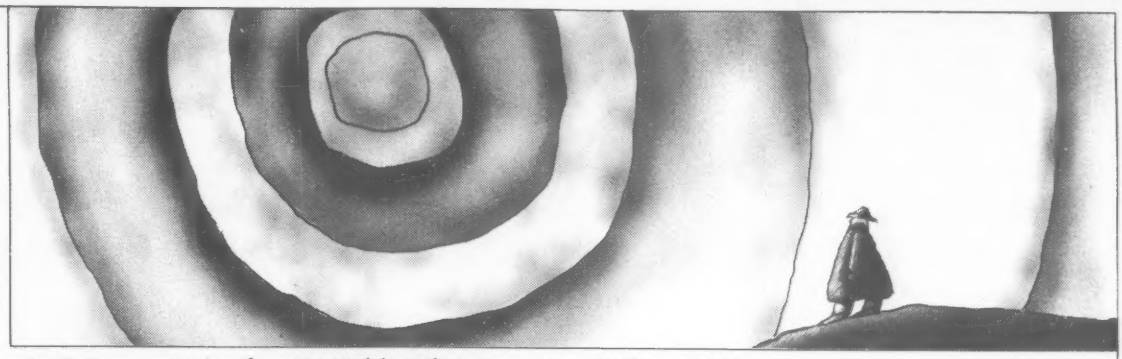
Computer recruitment advertising activity*



*Analysis of computer recruitment advertising space in *Computerworld* and selected major U.S. newspapers

SOURCE: CW PUBLISHING, INC.'S RECRUITMENT MARKET RESEARCH DATABASE

CW CHART: FRANK C. O'CONNELL



A New Light Will Shine In The West.

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We're in Silicon Valley, developing a brilliant new line of fault-tolerant UNIX™ computers to answer the need for fault tolerance in the UNIX marketplace.

To help us do it, we're looking for people who believe, as we do, that hard work and open minds can make miracles happen. People who'll thrive in a small start-up environment within a larger, financially stable company; a place where individual contributions really matter; where the pace is fast, the work challenging, and communications lines always open.

If you're ready to let your own light shine with ours, we'd like to talk.

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UNIX Course Developer (CW1)
5 years' UNIX course development and training

UNIX System Performance Specialist (CW2)
5+ years' UNIX performance, measurement and tuning

Marketing Communications Technical Writer (CW3)
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ENGINEERING

Senior UNIX Kernel Developers (CW4)
Trap/interrupt, MMU experience

UNIX Kernel Developers (CW5)
2+ years' kernel and/or drivers experience

Software Quality Assurance Engineer—Automation (CW6)
2+ years' porting and writing UNIX systems test suites

Software Quality Assurance Engineer—Communications (CW7)
Communications and network software testing

Dynamic Configuration Developer (CW8)
3-5 years' UNIX IO and drivers dynamic configuration experience

Utilities Developer (CW9)
Port System V libraries, utilities

O/S Performance Analyst (CW10)
5+ years' performance modeling

PUBLICATIONS

Technical Writer (CW11)
3+ years' documenting UNIX, troff, vi

Communications Technical Writer (CW12)
2+ years' documenting UNIX and networks

SOFTWARE CUSTOMER SERVICE

Software Customer Service Manager (CW13)
6+ years' managing UNIX customer support

Software Customer Service Engineers (CW14)
1-5 years' UNIX software support

We offer competitive salaries and benefits, and an opportunity to be yourself in an open, supportive, and successful environment. For immediate consideration, please send your resume—indicating appropriate position code—to: Human Resources, Stratus Computer, Inc., Western Development Center, 12980 Saratoga Avenue, Saratoga, CA 95070.

Resumes can also be faxed to: (408) 973-8255

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PA VMS ORACLE $40K
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PA CREDIT CARD $45K
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PA TANDEM $38K
PA IMS DB/DC $44K
PA IDMS ADSO $42K
PA SYS36 RPG MFG $38K
LAN DESIGN 3 COM $38K
SE ADA VMS $43K
SE C MSDOS WINDOWS. $35K

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We offer a salary commensurate with experience, comprehensive benefits, no state income tax, and a West Central Florida location offering unparalleled recreational advantages.

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Consider this.

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CPU

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We are currently recruiting Field Engineering and Hardware Support people with a minimum of three years experience in the installation and maintenance of COMPATIBLE IBM large mainframes, DASD and FEP's; or their equivalent.

These positions will be offered to individuals with proven track records in hardware engineering, who can manage complex multivendor environments, and the customer issues that arise because of it. The challenges are there for the right people. You will be working for the company that is the sole distributor in the Middle East for the largest IBM compatible mainframe manufacturer.

BENEFITS: Tax free salary, single and married status positions, education allowance for approved dependents, free fully air-conditioned living accomodation, car or transportation allowance. One month salary, bonus on completion of the initial two-year contract. Medical and personal accident insurance, two weeks leave on completion of each six months of service for single status position, 30 calendar days vacation for married status positions once a year, free air travel from and to point of origin.

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Portland, OR 97201

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- IBM CICS, COBOL, DB2 P/A's (Multiple Openings)
- IBM VM/MVS/VSE SYS PROGRAMMERS
- DEC/VAX/ORACLE P/A's
- DEC/VAX S/E UNIX, ORACLE (F/T)
- DEC/VAX 'C', X-WINDOWS
- DEC/VAX ASK MANMAN (West Coast)
- MACTOOLBOX MS-DOS INTERNALS HYPERCARD DEVELOPERS
- Q/A ENGINEER - AEGIS/RELATIONAL DATABASE
- PC/APPLE/MAC COURSE INSTRUCTORS (Hartford Area)
- S/E 'C', MS-DOS, INFORMIX-4GL & ESQL/C
- UNISYS, LINC

Minimum 3-5 years experience.

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Computerworld's second annual Campus Recruitment Edition

Issue Date: October 31, 1989
Close: September 29, 1989

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Planned Editorial Features:
(subject to revision)

- MIS salary and job satisfaction survey
- Where are the best jobs?/What positions are hot?
- Experiences of recent MIS graduates in their first jobs and what helped them in school
- The MIS career ladder
- Profiles of acclaimed top level MIS executives
- The strategic advantage of computers and how they play a key role in running a company

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Experience in Physical IMS database design as it relates to corporate functional business modeling, data architecture, information systems architecture and Entity Relationship Modeling. Knowledge of information engineering techniques, C.A.S.E. tools, strategic data and process planning, system delivery lifecycles, data management theory, techniques, and tools helpful. IMS DC is implementation vehicle for most IMS and DB2. Knowledge of DB2 considered a plus.

INFORMATION ENGINEERING SYSTEMS ANALYST

This individual will use information engineering techniques and tools in the development of business systems. Minimum 3 years experience as systems analyst using structured systems analysis and design methodologies. Background in COBOL and DB/DC programming with information engineering tool experience a plus. IEF helpful.

DEVELOPMENT CENTER ANALYST

This individual will provide technical support to applications developers in the use of development languages and testing tools. Will be required to develop machine/human interfaces to simplify the use of tools by application developers. Minimum 5 years experience in applications development with knowledge of COBOL, ASSEMBLER, and TSO/ISPF Dialog Manager.

DATA ADMINISTRATION ANALYSTS

Knowledge of DA concepts, information engineering techniques and C.A.S.E. tools. Experience in Entity Relationship Modeling and general knowledge of DP environment required, IEF helpful.

OPERATIONS RESEARCH ANALYSTS

Must have strong analytical background. Will be responsible for analyzing, programming, and implementing data processing techniques to solve complex operational and planning problems. Linear programming, regression analysis, sampling, simulation, and forecasting experience is required as well as the ability to program using a high-level language (PL/1, SAS, Fortran, C or Pascal).

CAPACITY PLANNING/PERFORMANCE MANAGEMENT ANALYST

Will provide information and recommendations to management regarding the use of current computer resources and project additional resources required to implement new applications and systems. Must have 5 years of large-scale computer experience in capacity planning, performance management or systems programming. A working knowledge of MVS/XA, MVS/ESA, JES 3, SAS, and MICS is required.

JAD ANALYST

Assist in the development and implementation of joint application development (JAD) workshop methods and techniques for use during the analysis stages of computer application development. Includes assisting in the integration of those techniques with the information engineering methodology. Function as a JAD facilitator in the systems development requirement and design workshops. Analytical skills required with a background in structured systems analysis and design.

INFORMATION CENTER CONSULTANT

Experience in evaluating, consulting, and training on mainframe decision support tools such as DB2, QMF, FOCUS, Dialog Manager, and SAS. Experience in MVS/TSO preferred.

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University of Alaska, Statewide Administration

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CLOSING DATE: August 14, 1989

PRINCIPAL DUTIES: Manage disk storage by defining data set placement, analyze usage and develop use projections and make recommendations. Develop and maintain the data base environment including installation, definition and access strategies and data dictionary maintenance. Develop and implement procedures to protect data base against unauthorized access or destruction of data. Develop and deliver information/training relating to concept and usage of the data base. Maintain and monitor data base usage and software performance. Assist Operation Analysts in production systems recovery and provide information to analysts as requested.

MINIMUM QUALIFICATIONS: Minimum two years data base management systems experience on a system size-equivalent to University of Alaska, including a minimum of one year in data base application and management analysis and design. Minimum three years experience in computer programming and/or systems analysis. Bachelor's degree in a related discipline is desirable.

UNIVERSITY ENVIRONMENT: IBM 3090 with MVS/XA, VTAM, IDMS/R 10.2, IDMS/R-DC, ADS/O, COBOL.

TO APPLY: Submit a current resume and the name of three professional references to:

University of Alaska Computer Network
910 Yukon Drive, Suite 208C
Fairbanks, Alaska 99775-5150
Attention: Vi Mullen

Your application for employment with the University of Alaska may be subject to public disclosure should you be among the finalists for the position. The University of Alaska is an AA/EO Employer and Educational Institution.

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EG&G Idaho, Inc., prime operating contractor for the Department of Energy's Idaho National Engineering Laboratory, has an immediate opening for an Engineering Specialist.

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Qualifications include a Bachelors Degree in Electrical Engineering or Computer Science, MS preferred. Minimum of 5 years directly applicable experience.

If you are ready for a real challenge and unlimited opportunity let us hear from you soon. Please send your resume, references and salary history to: **Employment Services, (TBD-128), EG&G Idaho, Inc., P.O. Box 1625, Idaho Falls, Idaho 83415-3127.** Equal Opportunity Employer M/F/H/V. U.S. Citizenship required.

EG&G Idaho, Inc.

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Tri-State is a non-profit wholesale supplier of electrical power to 25 rural distribution cooperatives in Colorado, Wyoming and Nebraska.

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Requirements include a Bachelor's degree in Computer Science, MIS, or related area, and 2 years of progressive programming experience including applications software development and systems designing and implementation. Experience with COBOL in a VAX/VMS environment is required. Experience with FORTRAN is a plus. Experience in the use of INGRES is also highly desirable.

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- *INGRES • ADABAS • SNA • VTAM • M&D • MSA*
- *MAPICS*
- **Communications • Networking • Operating Systems**
- **Compilers • Controls • Parallel Processing**
- **Distributed Systems • Object Oriented Programming**
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* DB2/CSP	* INFORMIX	* PC/DOS EXPERTS
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All the information you need is right here. Just call Lisa McGrath at 800-343-6474 (in MA, 508-879-0700). Or, if you want, you can send us the form below via mail or to our FAX machine. You can reach our FAX at ext. 739 or 740 at either of the above numbers.

The following information will help you determine the size ad you'd like to run and when you'd like to run it.

CLOSING DATES: To reserve space, you need to call us by 5PM (all continental U.S. time zones), 6 days prior to the Monday issue date. We need your ad materials (camera-ready mechanical or copy for pub-set ad) by 5PM, 5 days prior to the weekly issue.

AD COPY: We'll typeset your ad at no extra charge. You can give us copy via phone, U.S. mail, or FAX. To typeset an ad for you, we need clean, typewritten copy. Figure about 30 words to the column inch, not including headlines. (There are seven columns on each page.)

LOGOS AND SPECIAL ARTWORK: Any logos or special artwork should be enclosed with your ad copy. For best reproduction, please send us either a stat of your logo or a clean sample on white bond paper.

COLUMN WIDTHS AND MINIMUM DEPTHS: Your ad can be one of seven different widths. There is a minimum depth requirement for each width. You can also run larger ads in half-inch increments. The chart below can serve as a reference.

NUMBER OF COLUMNS	WIDTH	MINIMUM DEPTH
1 column	1-1/4"	2"
2 columns	2-5/8"	2"
3 columns	4-1/16"	3"
4 columns	5-9/16"	4"
5 columns	6-15/16"	5"
6 columns	8-3/8"	6"
7 columns	9-3/4"	7"

RATES: Your rate will depend on the size of your ad and whether you choose to run regionally or nationally. The national rate is $13.50 per line or $189.00 per column inch. The regional rate (Eastern, Midwestern or Western editions) is $9.00 per line or $126.00 per column inch. You can run your ad in any two regions for $11.60 per line or $162.40 per column inch. In all cases, you can earn volume discounts.

The minimum ad size is two column inches (1-1/4" wide by 2" deep) and costs $378.00 if run nationally. A sample of this size appears below. You can run larger ads in half-inch increments at $94.50 per half inch. Box numbers are available and cost $25 per insertion ($50 if foreign).

Programmer Analyst

This is a sample ad for Computerworld's Computer Careers section. It will help you decide what size ad you'd like to run. Remember that you can run your ad either regionally or nationally in our recruitment section and that the minimum ad size is one column (1-4/16 inches wide) by two inches deep (like this sample). This ad would cost $378.00 in our national edition, $252.00 in the Eastern, Midwestern, or Western edition, and $324.80 in two regions; volume discounts apply.

SAMPLE AD SIZES AND PRICES: To assist you in planning your recruitment advertising, the following shows common ad sizes and their respective costs.

	One Region (East, Midwest or West)	*Two Regions (East/West East/Midwest, Midwest/West)*	*National Edition*
1 column x 2"	$ 252.00	$ 324.80	$ 378.00
2 columns x 2"	$ 504.00	$ 649.60	$ 756.00
3 columns x 3"	$1,134.00	$1,461.60	$1,701.00
4 columns x 5"	$2,520.00	$3,248.00	$3,780.00
5 columns x 7"	$4,410.00	$5,684.00	$6,615.00

PAYMENT: If you're a first-time advertiser or if you haven't established an account with us, we need your payment in advance (or with your ad) or a purchase order number. Once you have established an account with us, we'll bill you for any ads you run as long as your payment record is good.

COMPUTER CAREERS NETWORK BUYS: You can take advantage of special rates that let you run your ad in *Computerworld* and *Computerworld*'s sister newspapers at special rates. Choose from *Computerworld Focus on Integration, Network World, InfoWorld, Digital News and Federal Computer Week. Call for details.*

Computerworld Recruitment Advertising Order Form

Ad Size:_____ columns wide by _____ inches deep

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Name: _____

Company: _____

Address: _____

Telephone: _____

Region: ☐ East ☐ Midwest ☐ West **National:** ☐
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Send this form to: **COMPUTERWORLD RECRUITMENT ADVERTISING**
375 Cochituate Road, Box 9171, Framingham, MA 01701-9171
800-343-6474 (In MA, 508-879-0700)
Telecopier Extensions: 739 or 740

MARKETPLACE

Looking beyond sticker price

If hidden costs aren't considered, your new system could be a headache

BY MICHAEL ERBSCHLOE
SPECIAL TO CW

You're buying a new computer system. Your vendor has given you an attractive price. You are about to sign a contract. But are you sure you have identified all the costs you will incur by acquiring the new system? There are many hidden ones of which you might not be aware. Be sure to give special consideration to the following factors:

Property taxes. The amount of your property tax will be based on a determination of the system's fair market value. Depending on local tax codes and the assessor's interpretation of them, computer systems may be valued by one of the following methods: actual cash value, acquisition cost minus depreciation allowed by law, depreciated book value or negotiated rate.

Property taxes are assessed only for equipment installed on or before the annual assessment date. It may be possible to reduce property taxes by shifting a scheduled installation date to after your local assessment.

Sales taxes. The effect of state sales taxes on the cost of an acquisition can be significant. Check with local sources such as state tax officials to determine the actual rate. If your computer is leased, sales tax will generally be due on a portion of the annual lease amount.

Insurance. Insurance costs typically increase considerably with the purchase of a new system. This is especially true if your existing computer has little current market value. Annual insurance premiums vary widely depending on the risks covered and the location of the equipment.

Insuring against loss by fire is the most significant cost and varies according to the fire rating of the building that will house the computer. It can be as low as 8 cents per $100 of insured equipment for a newer steel or brick office building with sprinkler and halon systems.

On the other hand, it can be as high as $1 per $100 of the value of the equipment for an older wood building without a sprinkler or halon systems.

Installation costs. Most equipment will require installation and related support services. Along with the hardware installation, items that may involve additional charges include: site planning assistance, inspection of equipment prior to delivery, cables, relocation of existing equipment within the data center, testing, software installation and system generation.

Conversion costs. A decision to acquire a different system or change the current configuration may hinge on installation and conversion costs. In many cases there may be a need to retain the original equipment during the conversion period; doing so may mean incurring duplicate costs for a period of six to 12 months or longer. This approach will impact personnel expenses as well as facility costs.

> DON'T ASSUME there won't be personnel costs just because there are no extra programming expenses.

Lease termination. These charges will apply if you are ending your lease prior to the contractual termination date. Some leases provide that, in the event of a sublease of the equipment, the lessor will allow the lessee to use sublease payments to offset original lease payments.

But sublease terms can result in additional costs, including stipulated termination charges, freight for shipping the computer to the new lessee, insurance while in transit, reinstallation at the new site, new cables if longer ones are required, refurbishing, reconfiguration and floppy-disk microcoding.

Facilities costs. In some cases your data center may not be properly equipped to handle a new computer, especially if you need to run the old system while the new one is installed and conversion work is performed. You may need to install or expand the following: electrical power and receptacles, under-floor conduits for cables, fire alarm and control systems, room modifications, water cooling, uninterruptible power supplies, air conditioning and telephone lines for modems.

Personnel costs. Don't assume there won't be personnel costs just because there are no extra programming expenses. Most IS installations are already committed to a full schedule of application development and maintenance. Because of this commitment, a conversion budget must include the cost of deferring application development and maintenance during testing and conversion stages of the new system.

Programmer and machine operator costs to consider include:

- JCL changes.
- Program modifications.
- Program recompilation and debugging.
- Loading of operating systems and outside software packages.
- Programs to dump and reload data files on new storage media.
- Parallel runs to check the data files and report output produced by the converted programs.
- Retraining operators, programmers and management.
- Consultants' fees.

To avoid jeopardizing your budget, you should determine if any of these considerations could adversely affect the purchase, installation and conversion of a new system. If your acquisition is well planned, it will provide welcome relief. If not, it may turn into just another headache, and a very expensive one at that.

Erbschloe is managing editor of "Computer Economics Sourcebook" in Carlsbad, Calif.

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The BoCoEx index on used computers

Closing prices report for the week ending July 14, 1989

	Closing price	Recent high	Recent low
IBM PC Model 076	$475	$625	$400
XT Model 086	$800	$1,150	$700
XT Model 089	$1,225	$1,400	$950
AT Model 099	$1,725	$1,850	$1,500
AT Model 239	$1,700	$2,100	$1,70075
AT Model 339	$1,800	$2,000	$1,700
PS/2 Model 50	$1,750	$2,000	$1,700
PS/2 Model 60	$3,200	$3,300	$2,500
Compaq Portable I	$425	$750	$325
Portable II	$1,700	$2,100	$1,700
Portable III	$2,875	$2,950	$2,200
Portable 286	$1,900	$2,000	$1,675
Plus	$900	$1,200	$900
Deskpro 286	$1,925	$2,350	$1,800
Deskpro 386	$2,625	$2,900	$2,500
Apple Macintosh 512	$600	$650	$300
512E	$750	$925	$600
Plus	$925	$1,150	$750
II	$3,450	$4,175	$3,425
Toshiba T-3100	$1,725	$1,850	$1,450
Zenith 184 Supersport	$1,775	$1,775	$1,300

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However, the convenience of generic training diminishes in importance when compared to the long-term benefits provided by training that is customized. Tailored training, by its selective nature, avoids many of the problems inherent in generic, one-size-fits-all training approaches.

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In a generic classroom situation, you will find students with disparate levels of computer proficiency. Because these students do not come with an equal need to know features, functions and techniques, much of the coursework — examples, exercises and case studies — is unlikely to fit the immediate needs of many students. The result is either an "attend-and-forget" syndrome or poor attendance.

Tailored training, on the other hand, is customized for the immediate needs of a specific functional area or business unit. Course objectives are determined jointly by training professionals and representatives of the end-user department, who can articulate required skills and criteria for evaluation. When departmental representatives participate in planning classes that revolve around their specific needs, they have a greater stake in a successful outcome.

In helping set course objectives, managers also become more conversant with the risks they face and the responsibilities they assume for the computing their employees are doing.

Tailored training can be business-oriented rather than product-oriented. It is more likely to revolve around real problems that the department is facing or expects to face. Students can be shown how to apply the computer technology to analyze and resolve these problems. This problem-solving orientation discourages the tendency to place hands on the keyboard first and think about the problem later — if at all.

In addition, course exercises can revolve around the development of applications that the department will actually use; retention is improved because the material presented is relevant to students' work. They see firsthand not only how to use a product or a technique but also how it can be usefully implemented.

Classes can be limited to the specific techniques the department needs, thus trimming class length and narrowing the focus. Programs can also address more than one product if a project calls for it.

Each class is delivered only to members of the department and even then only to department members whom a manager designates as requiring the material. As a result, no-shows are less likely to be a problem.

Tailored classes can be forums for identifying unique departmental responsibilities requiring special procedures. For example, a department preparing reports to be sent to a regulatory agency may need help incorporating certain checks and balances in its applications.

A manager can designate a member of his end-user department to serve as internal product support specialist after training is completed. This individual might serve as the first source of support to department members, with additional help available from the training department or the information center.

Because students in a tailored program are from the same firm, class discussion often involves other relevant uses of the material being presented. Thus, the scope of the class can extend beyond the specific agenda along beneficial lines.

The success of tailored training is easier to gauge because it can be based on performance criteria established at the outset. Similarly, training problems are easier to diagnose and solve.

Tailored training can be planned to extend beyond a single course. It may be appropriate to develop an entire curriculum that addresses a range of departmental needs.

Because trainers develop a perspective of the overall needs of the area, they can fine-tune course material to highlight key issues, avoid redundancies and maintain consistency in format and style across courses.

Training is often viewed as a reactive function for which benefits are difficult to demonstrate. Training tailored to a specific department is a means of moving from a come-and-get-us orientation to a go-get-'em approach that focuses on generating documentable benefits by supporting business needs.

TAILORED TRAINING can generate discussion of computing within a firm and facilitate evaluation of training programs.

Karten is president of Karten Associates in Randolph, Mass., and editor of the monthly newsletter "Managing End-User Computing."

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Directing training to achieve organization goals

August 14
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August 28
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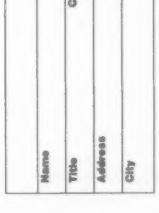

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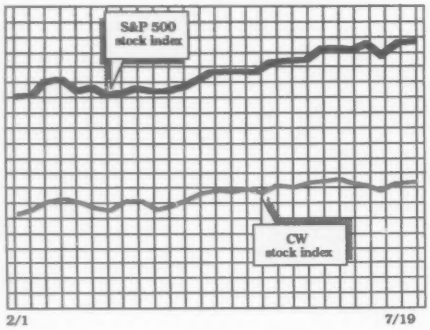

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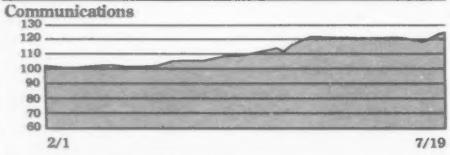

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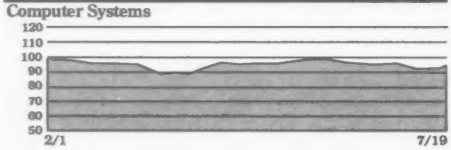

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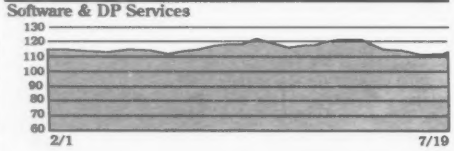

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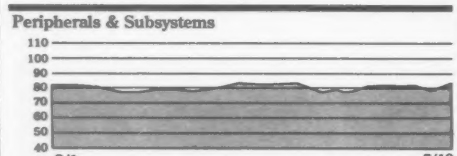

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Communications and Network Services

N	AMERICAN INFO TECHS CORP	82	44	58.625	-1.1	-1.9
Q	ANDREW CORP	24	16	23.5	1.5	6.8
Q	ARTEL COMM CORP	7	2	6.25	0.6	11.1
N	AT&T	37	24	36.875	0.4	1.0
Q	AVANTEK INC	7	4	5.75	-0.1	-2.1
N	AYDIN CORP	19	13	17.625	-0.1	-0.7
N	BELL ATLANTIC CORP	92	68	91.75	1.3	1.4
N	BELLSOUTH CORP	52	39	50.875	0.8	1.5
Q	COMPRESSION LABS INC	9	3	7.875	-0.1	-1.6
Q	COMPUTER NETWORK TECH	3	1	2.688	0.3	14.7
Q	CONTEL CORP	66	34	63.5	-0.6	-1.0
Q	DATA SWITCH CORP	8	4	3.875	-0.4	-8.8
Q	DIGITAL COMM ASSOC	34	17	22.125	1.1	5.4
Q	DYNATECH CORP	22	17	17.375	-0.1	-0.7
Q	FIBRONICS INTERNATIONAL INC	7	3	6.875	0.4	5.8
Q	GANDALF TECHNOLOGIES	7	4	5.75	0.3	4.5
Q	GENERAL DATACOMM INDS	6	3	5.5	0.0	0.0
N	GTE CORP	58	39	57.875	1.5	2.7
Q	INFOTRON SYS CORP	13	10	10.5	0.0	0.0
N	ITT CORP	61	46	59.875	0.8	1.3
N	M A COM INC	11	8	8.375	0.4	4.7
Q	MCI COMMUNICATIONS CORP	42	16	39.375	0.1	0.3
N	NETWORK EQUIP TECH INC	25	14	23.25	0.5	2.2
Q	NETWORK SYS CORP	12	8	8.625	0.0	0.0
N	NORTHERN TELECOM LTD	20	14	18.875	0.3	1.3
Q	NOVELL INC	38	24	27.75	0.0	0.0
N	NYNEX CORP	84	63	79.625	-1.1	-1.4
N	PACIFIC TELESIS GROUP	45	28	43.875	0.8	1.7
A	PENRIL CORP	6	3	5.688	-0.1	-1.1
N	PLESSEY PLC	46	25	42	0.1	0.3
N	SCIENTIFIC ATLANTA INC	21	10	19.875	-0.5	-2.5
N	SOUTHWESTERN BELL CORP	56	36	54.75	0.6	1.2
Q	3 COM CORP	29	16	17.125	0.1	0.7
N	U S WEST INC	73	53	70.5	-1.8	-2.4

Computer Systems

Q	ALLIANT COMPUTER SYS	6	3	5	0.3	5.3
Q	ALPHA MICROSYSTEMS	8	5	6.875	0.1	0.9
Q	ALTOS COMPUTER SYS	10	6	5.875	-0.1	-2.1
A	AMDAHL CORP	26	16	15.75	0.0	0.0
Q	APPLE COMPUTER INC	50	34	40.5	0.5	1.3
N	BOLT BERANEK & NEWMAN	19	7	7.625	0.1	1.7
N	COMPAQ COMPUTER CORP	102	50	94.75	1.1	1.2
N	COMMODORE INTERNATIONAL	20	9	12.875	0.3	2.0
Q	COMPUTER AUTOMATION INC	7	3	3.5	-0.3	-8.7
N	CONTROL DATA CORP	25	16	22.125	1.0	4.7
Q	CONVEX COMPUTER CORP	15	7	13.625	0.1	0.9
N	CRAY RESH INC	86	45	45.375	-2.5	5.2
Q	DAISY SYS CORP	10	3	3.375	0.3	8.0
N	DATA GEN CORP	23	14	18	0.1	0.7
N	DATAPOINT CORP	6	3	5.125	-0.3	-4.7
N	DELL COMPUTER CORP	13	7	7.5	-0.6	-7.7
N	DIGITAL EQUIP CORP	122	86	95	-1.4	-1.4
N	FLOATING POINT SYS INC	4	2	2.75	0.0	0.0
N	HARRIS CORP	35	25	33.375	0.1	0.4
N	HEWLETT PACKARD CO	62	44	54	0.5	0.9
N	HONEYWELL INC	87	57	83.625	4.1	5.2
N	IBM	131	106	114.375	-0.4	-0.3
Q	INFORMATION INTL INC	16	13	15.5	0.3	1.6
Q	IPL SYS INC	9	2	8.25	0.6	8.2
N	MAI BASIC FOUR INC	21	5	6	0.0	0.0
N	MATSUSHITA ELEC INDL LTD	219	158	166.125	-5.9	-3.4
Q	MENTOR GRAPHICS CORP	45	23	37.25	0.3	0.7
N	NBI INC	5	1	2.5	0.3	11.1
N	NCR CORP	62	51	58	4.3	7.9
N	PRIME COMPUTER INC	21	12	19.125	0.0	0.0
Q	PYRAMID TECHNOLOGY	20	9	10.75	-0.3	-2.3
Q	SHAREBASE CORP	4	2	2.313	-0.1	-2.6
Q	SILICON GRAPHICS CORP	21	14	17.25	0.5	3.0
Q	STRATUS COMPUTER	35	21	29.75	1.8	6.3
Q	SUN MICROSYSTEM INC	23	13	16.875	0.1	0.7
Q	SYMBOLICS INC	3	1	1.75	0.0	0.0
Q	SEQUENT COMPUTER SYS INC	28	14	25.875	1.4	5.6
N	TANDEM COMPUTERS INC	20	12	19.5	2.0	11.4
N	TANDY CORP	47	38	44.875	-0.3	-0.6
N	ULTIMATE CORP	13	8	8.5	-0.3	-2.9
N	UNISYS CORP	36	24	23.75	0.6	2.6
A	WANG LABS INC	11	7	6.875	-0.4	-5.2

Software & DP Services

Q	ADVANCED COMP TECH	8	1	1.375	-0.3	-15.4
Q	AMERICAN MGMT SYS INC	18	11	12.5	1.1	9.9
Q	AMERICAN SOFTWARE INC	18	8	15.5	-0.4	-2.4
N	ANACOMP INC	10	5	5.75	-0.1	-2.1
Q	ANALYSTS INTL CORP	21	8	20.25	0.3	1.3
Q	ASHTON TATE	28	17	17.5	-0.3	-1.4
Q	ASK COMPUTER SYS INC	18	12	13.375	-0.1	-0.9
Q	AUTODESK INC	40	23	36.625	-1.4	-3.7
N	AUTO DATA PROCESSING	42	36	40.875	-0.5	-1.2
Q	BMC SOFTWARE INC	22	8	21.75	1.1	5.5
Q	BOOLE & BABBAGE INC	20	9	16.25	-1.3	-7.1
N	BUSINESSLAND INC	15	10	11.5	-0.5	-4.2
N	COMPUTER ASSOC INTL INC	22	12	18.125	1.3	7.4
Q	COMPUTER HORIZONS CORP	12	7	8	0.1	1.6
N	COMPUTER SCIENCES CORP	56	43	52.5	0.1	0.2
Q	CORPORATE SOFTWARE	16	9	11.25	-1.0	-8.2
N	COMPUTER TASK GROUP INC	17	11	11.625	-0.8	-6.1
Q	COGNOS INC	9	5	6.125	0.3	4.3
Q	COMSHARE INC	35	18	32.75	-0.8	-2.2
N	CULLINET SOFTWARE INC	9	4	8.625	0.5	6.2
N	GENERAL MTRS (CLS E)	54	39	53.375	1.4	2.6
Q	HOGAN SYS INC	7	4	6.375	0.3	4.1
Q	INFORMIX CORP	15	7	9.25	0.5	5.7
Q	INTELLICORP INC	5	2	3.625	-0.1	-3.3
Q	KEANE INC	19	6	14.75	0.8	5.4
Q	LEGENT CORP	28	16	25.5	1.0	4.1
Q	LOTUS DEV CORP	27	15	24.5	1.5	6.5
Q	MANAGEMENT SCI AMER	12	6	10.5	0.5	5.0
Q	WORDSTAR	4	2	2	-0.1	-5.9
Q	MICROSOFT CORP	67	45	54.125	0.9	1.6
Q	NATIONAL DATA CORP	34	19	30.375	-0.6	-2.0
N	ON LINE SOFTWARE INTL INC	7	4	6.375	0.0	0.0
Q	ORACLE SYS CORP	17	7	16.5	0.1	0.8
N	PANSOPHIC SYS INC	18	12	13.125	0.1	1.0
Q	PHOENIX TECHNOLOGIES INC	19	6	6.75	-0.3	-3.6
Q	POLICY MGMT SYS CORP	32	21	32.25	2.3	7.5
Q	PROGRAMMING & SYS INC	20	12	19.75	0.5	2.6
Q	RABBIT SOFTWARE INC	3	1	1.188	0.1	11.8
Q	RELATIONAL TECHNOLOGY INC	20	9	9.875	-0.4	-3.7
N	REYNOLDS & REYNOLDS CO	34	18	25	1.0	4.2
Q	SEI CORP	20	16	18.125	0.8	3.6
Q	SHARED MED SYS CORP	22	14	16.5	-0.1	-0.8
Q	SAGE SOFTWARE INC	10	6	8.375	-0.4	-4.3
Q	SOFTWARE PUBG CORP	29	16	23.5	-2.5	-9.6
A	STERLING SOFTWARE INC	8	5	6.75	-0.1	-1.8
Q	SUNGARD DATA SYS INC	20	13	17.625	0.1	0.7
Q	SYSTEMATICS INC	37	26	33.25	-0.3	-0.7
N	SYSTEM CENTER INC	26	13	25.25	0.8	3.1
N	SYS. SOFT INC	27	11	24.25	0.5	2.1

Semiconductors

N	ADV MICRO DEVICES INC	14	7	9.25	-0.1	-1.3
N	ANALOG DEVICES INC	15	10	10.625	0.1	1.2
Q	ANALOGIC CORP	11	7	9.875	-0.1	-1.3
Q	CHIPS & TECHNOLOGIES INC	26	11	24.5	-1.3	-4.9
Q	INTEL CORP	38	19	28.5	-1.3	-4.2
Q	LSI LOGIC CORP	14	8	9	0.0	0.0
Q	MICRON TECHNOLOGY INC	26	14	15.125	-2.6	-14.8
N	MOTOROLA INC	60	36	57	3.4	6.3
N	NATL SEMICONDUCTOR	11	7	7	0.1	1.8
N	TEXAS INSTRS INC	47	35	39.5	-1.1	-2.8
A	WESTERN DIGITAL CORP	15	9	9.125	-0.4	-3.9

Peripherals

Q	ALLOY COMP	4	1	1.875	0.0	0.0
N	AM INTL INC	6	5	5.25	0.0	0.0
Q	AST RESH INC	17	7	9.25	-0.5	-5.1
Q	AUTO TROL TECH CORP	8	4	4.5	-0.5	-10.0
Q	BANCTEC INC	16	8	15.875	1.4	9.5
Q	CIPHER DATA PRODS INC	11	8	9.125	1.0	12.3
A	COGNITRONICS CORP	7	2	6.625	1.9	39.5
Q	CONNOR PERIPHERALS	15	7	12	-0.3	-2.0
A	DATAPRODUCTS CORP	18	10	13.375	-0.4	-2.7
A	DATARAM CORP	11	7	8.875	-0.3	-2.7
N	EASTMAN KODAK CO	52	42	48.75	1.4	2.9
N	E M C CORP MASS	6	3	5.375	0.1	2.4
Q	EMULEX CORP	12	7	9	0.1	1.4
Q	EVANS & SUTHERLAND	22	13	21	3.0	16.7
Q	ICOT CORP	4	2	2	0.0	0.0
Q	INTERLEAF INC	13	6	7.75	0.1	1.6
Q	IOMEGA CORP	5	2	2.5	-0.1	-4.8
Q	LEE DATA CORP	4	2	2.75	0.3	10.0
Q	MASSTOR SYS CORP	4	2	3.188	0.0	0.0
Q	MAXTOR CORP	11	6	9.875	0.3	2.6
Q	MICROPOLIS CORP	15	5	4.75	-0.8	-13.6
Q	MINISCRIBE CORP	13	1	3.125	-0.1	-3.8
N	MINNESOTA MNG & MFG CO	75	35	73	0.5	0.7
Q	PERSONAL COMP PROD INC	6	4	4.563	0.0	0.0
Q	PRIAM CORP	2	1	0.5	-0.1	-11.2
Q	PRINTRONIX INC	11	7	8.375	-0.3	-2.9
N	QMS INC	10	6	9.625	0.9	10.0
Q	QUANTUM CORP	24	6	23.5	2.0	9.3
N	RECOGNITION EQUIP INC	13	6	10	-2.0	-16.7
Q	REXON INC	8	6	7.625	-0.1	1.7
Q	SEAGATE TECHNOLOGY	16	7	12.75	-0.9	-6.4
N	STORAGE TECH CORP	36	11	13	0.3	2.0
Q	TANDON CORP	3	0	0.5	-0.1	-11.2
N	TEKTRONIX INC	24	19	22.5	0.4	1.7
Q	TELEVIDEO SYS INC	1	0	0.25	-0.1	-20.1
N	XEROX CORP	69	52	66.625	0.8	1.1

Leasing Companies

Q	AMPLICON INC	115	11	16	0.5	3.2
N	CAPITAL ASSOC INTNL INC	9	5	7.5	0.0	0.0
N	COMDISCO INC	28	19	27.75	0.9	3.3
Q	CONTINENTAL INFO SYS	5	0	0.469	0.0	0.0
Q	LDI CORPORATION	17	13	15.75	0.5	3.3
Q	PHOENIX AMERN INC	5	3	4.25	0.3	8.3
Q	SELECTERM INC	9	5	8.5	-0.1	-1.4

EXCH: N = NEW YORK; A = AMERICAN; Q = NATIONAL

Let down

Despite positive announcements, IBM shares drop off slightly

Good news does not always lead to higher stock prices. IBM found this out when, after announcing a strong second-quarter earnings report, a patent-licensing agreement with Compaq Computer Corp. and software development plans with American Management Systems, Inc., its shares fell 2 points to close Thursday at 112¾. AMS, however, shot up 1¾ points to close at 12¼, and Compaq climbed 1⅜ to 93⅜.

Sequent Computer Systems, Inc. also had a big week after releasing a much brighter earnings report than analysts had expected. The parallel processing systems supplier's stock rose 3¼ points to close at 26¾. Also announcing strong earnings, Tandem Computers, Inc. finished at 19⅜, up 1⅛ points.

Despite announcing lower second-quarter earnings, Lotus Development Corp. climbed 1 point after the software maker announced it would develop programs for Sun Microsystems, Inc. Lotus stock closed at 25 points. The pact failed to stir Sun's shares, which dropped ⅝ of a point to close at 16½.

On the downside, Intel Corp., which reached an agreement to supply AT&T with personal computers, fell 1⅛ points to close at 28¾. Fellow chip-maker Motorola, Inc., however, finished up 2⅜ points at 56½. Cray Research, Inc. continued to drop, finishing at 43⅝, down 3¾. Digital Equipment Corp. also declined, ending at 93¼, off 2 points.

JOSEPH J. FATTON

Sun, Lotus gang up in Unix push

BY JAMES DALY
CW STAFF

MOUNTAIN VIEW, Calif. — Sun Microsystems, Inc. and Lotus Development Corp. last week teamed up in a software development pact aimed squarely at introducing Unix to the general-business office in which IBM-sanctioned operating system software now dominates.

Although both companies refused to reveal either product specifics or a ship date, Lotus has agreed to develop products for Sun's three computing platforms: the Scalable Processor Architecture-based workstations, the Motorola, Inc. 68000-based Sun-3 line and the Intel Corp. 80386-based Sun 386I.

The absence of general-business application software has kept Sun from making significant inroads in all but the power-hungry financial community.

Analysts said the alliance is a natural fit for both companies. With the stroke of a pen, Sun is quickly aligned with a firm famous for general-application software — including the best-selling 1-2-3 spreadsheet program — while the Cambridge, Mass.-based Lotus enters the running for lucrative government contracts, which often require Unix compatibility.

Earlier in the week, Sun had furthered its thrust toward the general-business market with a similar technology and marketing agreement with Sybase, Inc. Arrangements are also expected next month with other relational database vendors.

The alignment with Sun marks a fundamental change for Lotus, which had previously sold to an exclusively IBM-compatible environment. "Our strategy has evolved," said Frank Moss, vice-president of networked applications and systems. "The picture we see now is one in which users have a variety of LANs interconnected ... and we believe Unix is the way for this to happen."

It couldn't hurt

Analysts said the move will help Lotus, which has recently suffered through several down quarters, keep all the bases covered. "Lotus may not be completely convinced that the changeover from DOS to Unix will occur, but they sure want to be there if the swing does happen," said Michael Slater, editor of the newsletter "Microprocessor Report."

Although company officials were enthusiastic in their mutual backslapping, Sun President Scott McNealy was careful to limit the scope of the announcement. "Read my lips: There is no product announcement here today and no ship date," he said. "We won't discuss a product until we have one ready to go."

Lotus officials, however, said they are well along in their development cycle, and the move has been relatively easy because it is not a complete rewrite of Lotus applications. "We're going to use the same code that's going into the mainframe version of Lotus' 1-2-3/M," said Chris Wraight, product manager for the forthcoming product.

West Coast Bureau Chief Jean Bozman contributed to this report.

Sun

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Street doesn't see this opportunity five years out. They get paid every third nanosecond. They don't know how to deal with a company that is taking as big a swipe at the computer industry as we are."

Internally, employees say the mood remains upbeat, albeit guarded. Most employees now realize that the increasingly combative workstation market is one battleground where few, if any, will emerge unscathed. "We've all come to the realization that Sun is not going to take over the world like people thought a few years back," said one Sun employee who requested anonymity. "We're not the only game in town anymore, but if you consider the problems of DEC, IBM or HP/Apollo, we look pretty good."

Although employee reviews of McNealy are externally positive, the occasional barb slips in. "He's not as incompetent as a lot of the managers in the computer industry," noted one backhanded review compliment.

Still, the loss of some of McNealy's top generals promises to make his job that much more difficult. No replacement has yet appeared for No. 2 man Bernard J. Lacroute, who served as the vice-president in charge of product and technology development and left in April, claiming that the hectic pace of the company had become too wearing. Although rumors have also surfaced that the position of chief operating officer may be soon be created within the company, no official confirmation has appeared.

Sun's McNealy: *too much to handle?*

McNealy has not ruled out some reshuffling of Sun's corporate structure but has stopped short of calling it a reorganization. "There is a very strong trend toward simplification and focus," he said.

The result has been industry ataxia, with some of McNealy's harshest critics suggesting that Sun keep an eye out for a more well-rounded executive in much the same way that ex-Pepsico, Inc. President John Sculley was brought in to bolster Apple Computer, Inc. and subsequently unseat co-founder Steve Jobs.

Company veterans also indicated that McNealy may have a vision of the company to which increasing numbers of employees no longer subscribe. Robert Smith, a board member of Santa Clara, Calif.-based Insite Peripherals, Inc. who served as Sun's first chief financial officer from 1983 to 1987, said he believes Sun has divided into two camps: veteran employees still adhering to the near-religious fervor that fueled Sun's early rapid growth and greenhorns devoid of such total body-and-soul commitment, for whom Sun is merely a good place to work.

"This division is happening at higher and higher levels," Smith said. "In the mind of McNealy, everyone is still on this crusade, but this is just not the case anymore. That's why we see the slipups happening."

The result has been that the company's lofty expectations have sometimes crashed far short of goals. McNealy recently admitted, for instance, that orders for older Sun products were stronger than forecast while orders for the new products, such as the Sparcstation 1, have lagged [CW, June 5].

"Sun never doubted the unquestioned success of their new products, and that assumption is now having big repercussions," said Bruce Jenkins, a vice-president at Daratech, Inc., a research firm in Cambridge, Mass. "Management needs to pay attention to these details."

However, company veterans also argue that it is unfair to question the firm's resilience based on a few skid marks. "Sure there are going to be some ups and downs, but I feel pretty good about their future," said Vinod Khosla, a co-founder of Sun who now serves as president of Dynabook Technologies Corp. in Pleasanton, Calif.

Nevertheless, the bloom is now most definitely off the rose.

"Sun is facing some very intense and public growing pains," ex-CFO Smith said. "It still wants to be a kid, pursuing whatever strikes its fancy and possessing unlimited energy, but it's grown into an adult."

Dynabook's Khosla *feels good about Sun*

Once the unchallenged workstation market leader, Sun has found itself fighting battles on several fronts. Digital Equipment Corp. and IBM are pushing toward the desktop with a new vigor; DEC introduced the 2100 Unix workstation last Tuesday, and a revamped RT is expected from IBM this fall. Hewlett-Packard Co. is offering a 90-day free trial of its workstations.

Sun also faces stiff competition in selling its Scalable Processor Architecture (Sparc), where it is pitted against several other reduced instruction set computing (RISC) architectures by such companies as Intel Corp., Motorola, Inc., Intergraph Corp. and Mips Computer Systems, Inc.

So far, Sun has faced a tough uphill battle in that area. Intergraph was No. 1 in the RISC market last year, accounting for more than 39% of total RISC stations shipped, according to International Data Corp. (IDC). Although Sun finished next in the RISC horse race, it lagged far behind, with 25% of the total units shipped, IDC noted.

In addition to encouraging development of low-cost Sparc-based clones, Sun has also tried to gain market share by playing price-cutting hardball. Nagging questions linger about how long Sun can play that game with a $50 billion company like IBM, which may simply be content to absorb slim profit margins on its desktop line until Sun runs out of breath.

Company officials, however, claim they saw this train coming. "We started in this business with the understanding that our margins would be lean," said Director of Investor Relations Austin Mayer. "Sun is a lot better positioned to deal with low margins than IBM or DEC, who've got to financially feed layer upon layer of bureaucracy."

Analysts also warn that Sun should be careful not to let its high-level tactical errors filter down and alter the public perception of the company.

So far, that has not happened. Despite concerns, Sun remains the darling of the desktop power user. "If we stopped ordering from every company that occasionally has a botch-up, there would be nobody that we'd buy from," said Bush Karbal, associate director in charge of advanced technology support at Bear Stearns & Co., Inc. in New York.

Most observers predict that Sun has the intestinal fortitude to weather the shifting winds of change and could ultimately emerge as a more mature and savvy venture. "The issue here is not whether Sun is a good company; it is," Montgomery Securities' Ossad said. "But now we're going to see if it's going to rise above all this to become a great company."

Some spots on Sun

Sun's future has become considerably more difficult to predict since a series of closely bunched hot spots began to bedevil the company. Some of the more recent Sun-spots:

- On April 12, the day Sun hoped to monopolize industry attention with the much-ballyhooed Sparcstation 1 rollout, Hewlett-Packard Co. and Apollo Computer, Inc. announced that they had merged, creating a conglomerate that quickly leapfrogged Sun as the No. 1 vendor in that market.
- On June 4, a fumbled cutover from a HP minicomputer to an IBM-compatible mainframe complex was blamed for delaying thousands of orders. With revenue suddenly far behind expectations, Sun President Scott McNealy conceded that Sun could soon experience its first quarterly loss since it went public in 1986.
- Eleven days later, Chief Financial Officer Joseph A. Graziano said he was jumping ship to assume the same title at Apple Computer, Inc.
- On July 1, a hiring freeze on all but the sales and support staff went into effect.
- The company has also said that it will delay its move into a new building in Palo Alto as well as the staffing of a new plant in Scotland.

Putting a price on PC information

BY MICHAEL ALEXANDER
CW STAFF

When the thief who cleaned out a tax consultant's office in Silicon Valley realized that one of the personal computers he had stolen contained client tax records, he downloaded the information from its hard disk onto 20 floppies and mailed them to the victim.

The sympathetic thief realized that without the tax returns, the consultant would quickly be out of business. "It's the only case so far in which the thief recognized that the information had more value than the PC itself," said Donn Parker, a security expert at SRI International, a management consulting firm in Menlo Park, Calif.

It is probably inevitable, Parker warned, that at least some thieves will start realizing that the real money is not in fencing stolen PCs but in reselling the information they contained to a company's competitors or holding it up for ransom to its owners.

"Information theft" is being given a careful mulling over by many insurance and security executives these days. How to define and value information so that it can be properly protected, even insured, is much more of an issue, in part because PCs are now so common in corporate America.

The Information Systems Security Association, Inc.'s Corresponding Committee on Information Valuation has spent more than a year hammering out definitions that it hopes will enable the insurance industry and others to define and value information.

The committee convened in St. Louis this month to "deliver the final cut on terminology, deliver a preliminary cut on factors of whether and how to value information and take a first cut at a methodology for valuing information," said Will Ozier, president of Ozier, Perry & Associates, a computer security consulting firm in San Francisco. Ozier is also chairman of the ISSA's Committee on Information Valuation.

"Can the potential value of information be insured?" asked Marr Haack, director of marketing, electronics and information technology at St. Paul Fire and Marine Insurance Co. in St. Paul, Minn. "That is the tricky part, and a number of people in the insurance and information industries are trying to come up with an answer for it," he said. "It's an emerging area of risk management that requires more work."

Most insurance companies are going to be skeptical of whatever value a company wants to place on its information, Haack pointed out. If the company recognizes that its information is valuable, then it would be better off looking at ways to minimize the potential of losing it, he said. "Use common-sense procedures to protect the data, not the box."

Even the most rudimentary computer equipment policy will cover the cost of reproducing information lost to theft or other means, but none cover the value of the information itself.

Putting a value on a company's information would be difficult, even if insurance to cover it were available, said Michael Ridgway, vice-president of systems at Grange Insurance Co. in Columbus, Ohio. "Obviously, the cost to re-key the data is infinitesimal compared to the actual value of the data itself in the wrong hands," he said.

It is difficult to put a value on information because it is often intangible, and its value goes beyond whatever it costs to acquire, develop or maintain it, ISSA's Ozier explained.

"What use is made of the information, its criticality to the mission of the organization, how long can the organization go without the information and several other factors contribute to the value of information," he said.

Information also has different values to different groups. Authorized users of a company's information may not even recognize that the information has value beyond its identifiable costs, while a thief who can sell it to a competitor does, for example.

Prison

FROM PAGE 1

had the ability to store data "that may be a threat to the orderly operation of the institution," said Tom Rolfs, assistant director of the division of prisons.

Rolfs said the realization that so much data could be stored out of easy reach of prison staff and the appointment of a new prison director this past winter were the major reasons for the computer-use policy change issued last month.

There is a chance the 3-year-old program will get a reprieve. Last week, inmates were notified that while the computers were to be either shipped out of the institution or confiscated July 21, a final decision on the program would not be made until late August. Rolfs said the reconsideration was due in part to lobbying by the computer industry. Interested organizations include Redmond, Wash.-based Microsoft Corp. and Autodesk, Inc., based in Sausalito, Calif.

According to officials, every man whose record qualified him to have a personal computer either had one last week or had one on order. All the inmates had to pay for the computers out of their own funds or have the hardware donated to them. At a pay rate of no more than $30 per month, the computers cost them an average of 10 years' salary.

"This institution originally supported the program because we thought [PCs] would be like a TV. That thinking is no longer in vogue," said Jim Evans, intelligence officer for the Washington State Reformatory.

Evans said that requirements to have a computer in the cells were "clearly modifying behavior" and creating less of a discipline problem for the staff.

However, Mike Woods, associate superintendent of security, said that he could not pin down any direct effect on discipline.

RICH FRISHMAN

Prison inmates *hope for a reprieve from the removal of their PCs*

The program was started three years ago by Max Lewis, an on-site computer systems teacher for Edmonds Community College. Lewis also credits John Anderson, a convicted multiple murderer, with helping him.

Many of those with computers, such as Anderson, have little chance of release. But, Anderson said, some still want to keep their brains from "turning to tapioca with a steady diet of television."

The convicts acknowledge that some who learn computers could use their computer skills in a criminal manner.

Still, The Prisoners Users Group feels that the state is taking away the potential to develop programming skills on their own time and with their own funding. Although no records have been kept, the handful of inmates that have been released after taking part in the program have stayed out of prison. One success story is Bill Boone, who, after serving his time, now works as a computer-aided design operator for a Seattle engineering firm. "These guys are trying to advance themselves. A portion of them are trying to do scams, but to take away their [PCs] does more damage. You have no hope," Boone said.

One skill not available on the program was the ability to use modems, according to Lewis. He added that the only calls going out have to be made collect.

Yet the lack of access to the outside world has not deterred prison officials and staff from thinking that the PCs were being used for illicit purposes.

Guards are afraid that convicts can keep track of them via computer. "Computers are a very strong source of information. The criminal element here can take advantage of it," officer Theodore Bucher noted.

Security officer Woods said that having computers in the cells took too much of his guards' time. "Ninety percent of the staff don't like it," he said. Peripherals, down to each cable, had to be indexed, and prison officials were supposed to know what was on each disk, a time-consuming endeavor. There is also a certain amount of resentment between inmate computer users and prison staff. Inmate Michael McVay said that a guard told him, "We can't have you guys smarter than we are."

If the in-cell computers do not get a reprieve by the end of August, Lewis, as well as other teachers and prison officials, are hoping to expand the hours of the computer lab to allow for programming homework. If history is any indication, it is unlikely that funds will be made available for this expansion.

Antivirus legislation proposed

BY MITCH BETTS
CW STAFF

WASHINGTON, D.C. — U.S. Rep. Edward J. Markey (D-Mass.), after chairing a hearing on the Internet virus last week, authorized his subcommittee staff to draft antivirus legislation with the help of Arlington, Va.-based Adapso, the computer software and services industry association.

Markey, chairman of the U.S. House of Representatives' Subcommittee on Telecommunications and Finance, said the panel will "move forward in a deliberate but speedy fashion . . . to create a significant disincentive" for malicious software attacks.

The legislation is likely to start with Adapso's proposed amendments to the Computer Fraud and Abuse Act of 1986, which covers unauthorized access to federal computers [CW, Nov. 4]. John E. Landry, executive vice-president of Cullinet Software, Inc. and chairman of Adapso's virus subcommittee, urged Congress to amend the law to specifically cover "computer program tampering."

Need stronger definition

Landry also said the amendments should better define the word "access," include the concept that harm is caused by the disruption of computer systems and ensure that laptop computers are covered.

At the hearing, the U.S. General Accounting Office (GAO) endorsed the concept of amending the 1986 computer-abuse law to cover viruses and to make prosecutions easier. "Legislation directed at computer virus-type incidents could eliminate the uncertainty regarding the applicability of current laws," the GAO said.

Michael M. Roberts, vice-president of networking for a university consortium called Educom, cautioned that the legislation should be carefully drawn so that it does not restrict the free flow of information over research networks or discriminate against students.

The GAO, in a report on the Internet worm attack last November, recommended that the White House Office of Science and Technology Policy fill an Internet management void and become the security watchdog.

However, Markey said he will make an independent decision about which government agency should have responsibility for Internet, a web of interconnected research networks.

Kodak

FROM PAGE 1

Excel, will be able to issue commands to an SQL server," said David Passmore, a partner at Network Strategies/Ernst & Young, although he added that the company is not there yet. Users should thoroughly test interoperability between each application and server, since each vendor may have a slightly different SQL, Passmore said.

Kodak's Savarese

Passmore also suggested that companies such as Kodak should look into a variety of options before they decide on one vendor's server solution. While Kodak is definitely moving toward a distributed LAN database server architecture, it has by no means committed to any given technology to get the company there, Savarese emphasized.

In Kodak's pilot system, IBM Personal Computers will use personnel and payroll software from Peoplesoft in Walnut Creek, Calif., to access data from Gupta Technologies, Inc.'s SQL-based DBMS, which will reside on an OS/2 server.

One reason Kodak chose 3Com's networking software after evaluating competitive products from IBM and Novell, Inc. was that, at the time, only 3+Open supported remote workstation connections at rates of up to 9.6K bit/sec., Savarese said. This will become a key feature when Kodak's windows-oriented applications become more widely used and "a tremendous amount of data gets sent across those lines," he added.

Even now, with the pilot just going in and the 9.6K bit/sec. links up and running, Savarese's group has uncovered some response-time problems, which relate less to line speed than to how the application, DBMS and possibly the modems handle the data, he said.

While 3Com's 3+Open has not been out long enough to be evaluated, the network system is unlikely to harbor any major problems beyond the usual early bugs, said Dale Kutnick, president of Westport, Conn., consulting firm The Meta Group, Inc.

The larger challenges for Kodak, Kutnick said, are operational, administrative and control aspects of the LAN. "Once you put up distributed shared databases, you enter a whole new realm in terms of management requirements, including integrity and data synchronization issues," he said.

Besides supporting human resources staff, the 3Com system will provide employees throughout the company with a quick, easy way to view and update their own personnel records on the LAN servers.

Kodak developed software internally based on IBM's Infowindows that allows users to query the system using a touch screen on an IBM PC. Such PCs would be installed at kiosks around the company, he added.

If the pilot works and is accepted by users and if Kodak decides that this is the way it wants to handle its business — "all very large ifs," Savarese said — the system could be installed in 300 or more LANs throughout the world. Kodak would then move all of its human resources data off the host and onto servers.

The hosts would be retained, at least temporarily, and LAN-to-host links installed, so that users can access other types of data, such as general ledger, Savarese said.

In addition, while LAN users could communicate with one another via 3Com's 3+Open Mail, the current host-based corporatewide electronic mail system, based on IBM's Professional Office System, would be retained, he added.

EDS no longer in Kodak picture

BY CLINTON WILDER
CW STAFF

Eastman Kodak is renowned worldwide for its color film and processing, but its negotiations for an outside vendor to run its data centers now have only one color: Blue.

Kodak confirmed last week that it has broken off negotiations with Electronic Data Systems Corp. (EDS) and is talking solely with IBM about a closely guarded project to farm out some or all of its Rochester, N.Y., area information systems operations to a services provider [CW, June 19]. Even though both companies are longtime Kodak vendors, the decision to drop EDS came as a surprise because IBM submitted a proposal for this project several months after EDS.

"What IBM had to offer was closer to what we wanted," said Bill Brautigam, a member of the negotiating team for the project and an IS employee at Kodak. "As you go through a process, you look at things differently."

Brautigam said the dropping of EDS does not indicate a change in Kodak's goals for the project, which may involve building a new data center to consolidate the three centers Kodak runs in the area. However, a source within Kodak said IS employees were not happy about the prospect of working for EDS and preferred IBM's proposed approach, which the source said is more of a joint partnership with Kodak IS management.

"EDS goes in with kind of a hatchet, eliminates bodies, orchestrates, coordinates and economizes," said Stephen McClellan, a computer services industry analyst at Merrill Lynch & Co. "That's their job, and that's what they do well. Hardware is another thing they try to squeeze. I suspect that might not be IBM's approach."

At least one proposal currently being discussed would consolidate Kodak's data centers at corporate headquarters and two Rochester manufacturing facilities, the Kodak Apparatus Division and Kodak Park. Negotiations with IBM are in the final stages and an announcement could come very soon, sources said.

If consummated, the agreement could be a major coup for IBM's push into commercial systems integration and services and would make Kodak one of the largest companies to opt for outside management of the IS function.

Andersen exec joins competitor CSC

BY CLINTON WILDER
CW STAFF

CAMBRIDGE, Mass. — Consultant Melvyn E. Bergstein, who helped build Andersen Consulting's huge commercial information systems services business, will now try to do the same for a major Andersen competitor, Computer Sciences Corp. (CSC).

CSC hired Bergstein last week as senior vice-president of newly formed CSC Consulting, a unit consolidating the commercial systems integration and consulting firms that CSC has acquired in the past three years. CSC, a longtime leader in federal government IS projects, is trying hard to crack the commercial sector, and tapping Bergstein is its latest move in that direction.

Bergstein, 47, will report to Thomas P. Gerrity, president of CSC Consulting and former chairman of Index Group, Inc., the senior-level IS consulting firm that CSC acquired last year.

Analysts said landing Bergstein was a significant coup for CSC to position itself in commercial IS. "He may bring the most practical commercial experience of all those groups," said Douglas Wilder, manager of Input, Inc.'s systems integration program in Vienna, Va. CSC President William Hoover "is really focused on getting the right people in place to make the commercial business work."

Bergstein, a colorful and outspoken consultant, made no secret of the fact that recent tensions between the auditing and consulting practices at Chicago-based Arthur Andersen & Co. played a part in his departure. "I felt my contribution there was behind me," he said. "It wasn't fun anymore, and this business is too tough if it isn't fun. You can't maintain the same enthusiasm."

Bergstein *is strong in commercial sector*

Bergstein noted that CSC Consulting, with about $250 million in annual revenue, is the same size as Andersen's IS consulting practice when he became an Andersen partner in 1977.

His goal, Bergstein said, is not to "re-create Andersen," with its legions of systems programmers and legendary "technology boot camp" for new employees. Under Bergstein's direction, Andersen also became a major vendor of software products spearheaded by Foundation, its computer-aided software engineering tool set. "We have a lot of other things we have to do before we start selling software," Bergstein said of CSC.

CSC has maintained a hands-off approach with its acquired companies to date. Bergstein said his primary job will be to find areas where CSC's large-technology expertise — including designing large systems for weapons guidance, air-traffic control and the space program — can aid CSC Consulting's commercial efforts.

Bergstein is one of several high-profile consultants who have left Andersen recently, including Saatchi & Saatchi, Inc.'s Victor Millar and Information Consulting Group's Gresham Brebach.

But Merrill Lynch & Co. analyst Stephen McClellan, who hailed Bergstein's addition as a breakthrough for CSC, downplayed the impact his departure had on Andersen.

Andersen is "almost the IBM of this business, the supertanker," he said. "For them to lose much momentum is going to take a lot more than that."

Second-class postage paid at Framingham, Mass., and additional mailing offices.
Computerworld (ISSN 0010-4841) is published weekly, with a single combined issue for the last week in December and the first week in January of 1989 by CW Publishing/Inc., 375 Cochituate Road, Box 9171, Framingham, Mass. 01701-9171.
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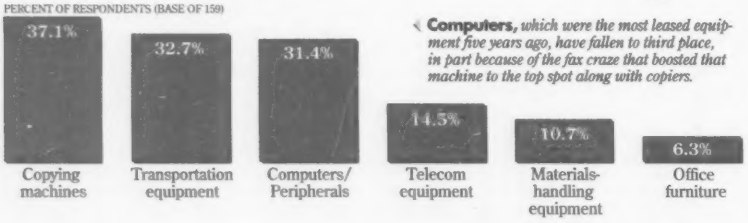
TRENDS

Leasing

A Gallup survey of 225 executives indicates that leasing is becoming a vital means of financing all types of equipment. Computer leasing alone hit the $20 billion mark in 1988.

What does your company lease?

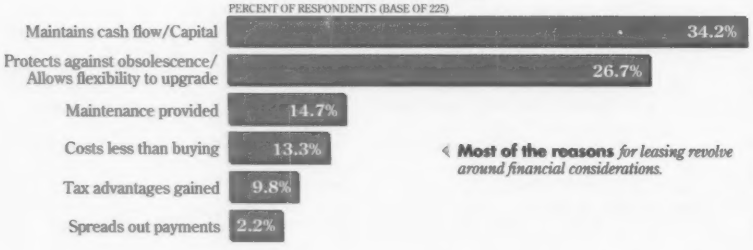
PERCENT OF RESPONDENTS (BASE OF 159)



Computers, *which were the most leased equipment five years ago, have fallen to third place, in part because of the fax craze that boosted that machine to the top spot along with copiers.*

What are the advantages?

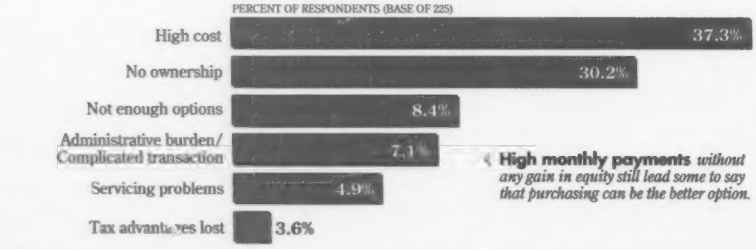
PERCENT OF RESPONDENTS (BASE OF 225)



Most of the reasons *for leasing revolve around financial considerations.*

What are the disadvantages?

PERCENT OF RESPONDENTS (BASE OF 225)



High monthly payments *without any gain in equity still lead some to say that purchasing can be the better option.*

SOURCE: AMERICAN ASSOCIATION OF EQUIPMENT LESSORS

CW CHARTS: FRANK C. O'CONNELL

NEXT WEEK

It sounds impossible, but **Doug Lewis**, chief information officer at Pratt & Whitney, has trimmed costs and cut staff at the jet engine unit of United Technologies — and he's won friends and influenced people while doing it. Read about what else is on this up-and-coming IS executive's agenda in the profile in Manager's Journal.

After repeated stonewalling on the subject, Wang Laboratories, Inc. recently confirmed that its PBX subsidiary, Intecom, actually is on the trading block. Industry analysts, however, noted that consummating a sale might prove even harder for Wang than the process of arriving at the decision — and the roadblocks, they believe, may well be far from particular to Wang. See more about the ins and outs of the situation in the Computer Industry section.

INSIDE LINES

Does this impress you?

"Impressive performance" figures will accompany the availability of Version 2, Release 2 of IBM's DB2, which will take place as promised prior to October, says Donna Van Fleet, the director of database strategy at IBM's Santa Teresa Laboratories. "Our goal is to not let performance be an issue," Van Fleet said, referring to earlier user hesitancy in moving to relational database technology. DB2 will show performance gains in queries, on-line transactions and batch processing, she said.

Please, don't let it be in service!

Wang Laboratories has more than met its goal of paring the work force down to 28,005 by its fiscal year's end, which fell on June 30. A spokesman said the company has "lost" 3,000 positions, mostly through layoffs. After an "exact" head count that will be conducted in the fourth quarter, the company will make a determination as to whether more layoffs are necessary.

Finally in line with world opinion . . .

Five years of struggling against the tide in the computer industry has clearly humbled AT&T. Attendees at last week's unveiling of Intel's line of 80386-based personal computers heard Robert M. Kavner, chief executive at AT&T's Data Systems Group, concede at one point that yes, the Big Bell has wound up with a reputation as the company that can't sell computers.

. . . but not ready to call it quits

Michael Goulde, a director at BIS CAP International, attended a separate AT&T briefing at which executives foreshadowed both OS/2 client support and an OS/2 LAN Manager application programming interface in the next release of its Stargroup network operating system, due out by the end of the year. AT&T also said it would support Apple's Appletalk and indicated it is closely tracking Intel 80486 developments. Regarding the Extended Industry Standard Architecture (EISA) alternative to IBM's Micro Channel Architecture, Goulde relates, "It was evident that they will introduce [an EISA] machine, but they do not see the need for a wide range of EISA cards." This is because AT&T sees EISA as more or less serving a niche market, he added.

Mac attack!

Microsoft reportedly gathered key Macintosh developers recently in a Redwood City, Calif., hotel to extol the virtues of Windows and Presentation Manager. At the not-so-top-secret meeting, Microsoft reportedly pitched development tools aimed at easing the overall programming burden. We wonder if it also begged?

Who can keep track?

Amdahl has been bragging for months that it is ahead of schedule for introducing MVS/ESA compatibility for its mainframes. But rival National Advanced Systems will beat Amdahl to show-and-tell time with its first demonstration, set for Tuesday. Amdahl's first demonstration is scheduled for next week.

We don't blame them

Following up on *Computerworld's* July 17 report of impending indictments against Robert T. Morris Jr., the Cornell University student who allegedly put a worm into the Internet last year, *USA Today* said last week that the bashful student is working at Saber Software, located in Cambridge, Mass. A developer of tools for machines running DEC's Ultrix and Sun's Unix, Saber denied Friday that Morris is an employee. However, a spokeswoman at Saber said that "he's not coming back."

How ingrained is high-tech in the culture of Silicon Valley? Well, a local firm selling a whirlpool unit that hooks to the side of your bathtub is running a radio ad wherein the gizmo is described as "modem-size." If you're tuned into valley developments, upload them to the attention of News Editor Pete Bartolik by dialing into our bulletin board at 508-626-0214, or call in at 800-343-6474.

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